TRANSMITTAL LETTER TO THE UNITED STATES ATTORNEY'S DOCKET NUMBER 49828

DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 U.S.C. 371 U.S. APPLICATION NO. (If known, see 37 CFR 1.5)

INTERNATIONAL APPLICATION NO.	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
PCT/EP00/02010	**8 March 2000**	**12 March 1999**

TITLE OF INVENTION: TRICYCLIC BENZOYLPYRAZOLE DERIVATIVES

APPLICANT(S) FOR DO/EO/US **Matthias WITSCHEL, Steffen KUDIS, Klaus LANGEMANN, Ernst BAUMANN, Wolfgang von DEYN, Guido MAYER, Ulf MISSLITZ, Ulf NEIDLEIN, Martina OTTEN, Karl-Otto WESTPHALEN, Helmut WALTER**

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. /X/ This is a FIRST submission of items concerning a filing under 35 U.S.C. 371.

2. / / This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371.

3. /X/ This express request to begin national examination procedures (35 U.S.C.371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).

4. /x / A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.

5. /X/ A copy of the International Application as filed (35 U.S.C. 371(c)(2)).

   a./X/ is transmitted herewith (required only if not transmitted by the International Bureau).
   b./ / has been transmitted by the International Bureau.
   c./ / is not required, as the application was filed in the United States Receiving Office (RO/USO).

6. /X/ A translation of the International Application into English (35 U.S.C. 371(c)(2)).

7. /X / Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)).

   a./X / are transmitted herewith (required only if not transmitted by the International Bureau).
   b./ / have been transmitted by the International Bureau.
   c./ / have not been made; however, the time limit for making such amendments has NOT expired.
   d./ / have not been made and will not be made.

8. /X / A translation of the amendments to the claims under PCT Article 19(35 U.S.C. 371(c)(3)).

9. /X / An oath or declaration of the inventor(s)(35 U.S.C. 171(c)(4)).

10./ / A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11. to 16. below concern other document(s) or information included:

11./X / An Information Disclosure Statement under 37 CFR 1.97 and 1.98.

12./ X / An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.

13./X / A FIRST preliminary amendment.
/ / A SECOND or SUBSEQUENT preliminary amendment.

14./ / A substitute specification.

15./ / A change of power of attorney and/or address letter.

16./x / Other items or information.
International Search Report
International Preliminary Examination Report

09/936356

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U.S. Appln. No. (If Known)	INTERNATIONAL APPLN. NO. PCT/EP00/02010	ATTORNEY'S DOCKET NO. 49828	
		CALCULATIONS	**PTO USE ONLY**
17. /X/ The following fees are submitted BASIC NATIONAL FEE (37 CFR 1.492(a)(1)-(5)): Search Report has been prepared by the EPO or JPO......$860.00		860.00	
International preliminary examination fee paid to USPTO (37 CFR 1.482)......$750.00			
No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2))......$700.00			
Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO ......$ 970.00			
International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied pro-visions of PCT Article 33(2)-(4)......$96.00			
ENTER APPROPRIATE BASIC FEE AMOUNT =	$	860.00	
Surcharge of $130.00 for furnishing the oath or declaration later than / / 20 / /30 months from the earliest claimed priority date (37 CFR 1.492(e)).			

Claims	Number Filed		Number Extra	Rate		
Total Claims	21	-20		X$18.	18.00	
Indep.Claims	1	-3		X$80.		
Multiple dependent claim(s)(if applicable)			+270.			
TOTAL OF ABOVE CALCULATION				=	878.00	
Reduction of 1/2 for filing by small entity, if applicable. Verified Small Entity statement must also be filed (Note 37 CFR 1.9, 1.27, 1.28).						
			SUBTOTAL	=	878.00	
Processing fee of $130. for furnishing the English translation later than / /20 / /30 months from the earliest claimed priority date (37 CFR 1.492(f)).			+			
TOTAL NATIONAL FEE				=	**878.00**	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) $40.00 per property			=		40.00	
TOTAL FEES ENCLOSED				= $	918.00	
				Amount to be refunded:	$	
				Charged	$	

a./X/ A check in the amount of $ 918. to cover the above fees is enclosed.

b./ / Please charge my Deposit Account No.______ in the amount of $______ to cover the above fees. A duplicate copy of this sheet is enclosed.

c./X/ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. **11-0345**. A duplicate copy of this sheetis enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b) must be filed and granted to restore the application to pending status.

Herbert B Keil
SIGNATURE

SEND ALL CORRESPONDENCE TO:
KEIL & WEINKAUF
1101 Connecticut Ave., N.W.
Washington, D. C. 20036

Herbert B. Keil
NAME
Registration No. 18,967

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of WITSCHEL et al.) BOX PCT

International Application PCT/EP 00/02010)

Filed: March 8, 2000)

For: TRICYCLIC BENZOYLPYRAZOLE DERIVATIVES

PRELIMINARY AMENDMENT

Honorable Commissioner of
Patents and Trademarks
Washington, D.C. 20231

Sir:

Prior to examination, kindly amend the above-identified application as follows:

IN THE CLAIMS

Amend the claims 3, 4, 5, 6, 14, 15, 16 and 17 as shown in the attached sheets.

REMARKS

The claims were amended in the preliminary examination. The claims have been amended further to eliminate multiple dependency and to place them in better form for U.S. filing. No new matter is included.

Favorable action is solicited.

Respectfully submitted,

KEIL & WEINKAUF

Herbert B Keil

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CLEAN VERSION OF AMENDED CLAIMS - OZ 49828

3. A tricyclic benzoylpyrazole derivative of the formula I as claimed in claim 1 where R^9 is IIa.

4. A tricyclic benzoylpyrazole derivative of the formula I as claimed in claim 1 where

Y together with the two carbons to which it is attached forms a heterocycle selected from the following group: dihydropyrazolediyl, dihydroisoxazolediyl, pyrazolediyl, isoxazolediyl or pyrimidinediyl.

5. A tricyclic benzoylpyrazole derivative of the formula I as claimed in claim 1 where

R^1, R^2 are hydrogen

R^3 is C_1-C_6-alkyl;

R^4 is nitro, halogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkoxy, C_1-C_6-alkylthio or C_1-C_6-alkylsulfonyl;

R^5 is hydrogen;

1 is 0 or 1.

6. A tricyclic benzoylpyrazole derivative of the formula I as claimed in claim 1 where

R^{10} is hyroxyl;

R^{11} is C_1-C_6-alkyl or C_3-C_6-cycloalkyl;

R^{12} is hydrogen or C_1-C_6-alkyl.

CLEAN VERSION OF AMENDED CLAIMS - OZ 49828

14. A composition, comprising a herbicidally effective amount of at least one tricyclic benzoylpyrazole derivative of the formula I or an agriculturally useful salt of I as claimed in claim 1 and auxiliaries which are customary for formulating crop protection agents.

15. A process for preparing compositions as claimed in claim 14, which comprises mixing a herbicidally effective amount of at least one tricyclic benzoylpyrazole derivative of the formula I or an agriculturally useful salt of I and auxiliaries which are customary for formulating crop protection agents.

16. A method for controlling undesirable vegetation, which comprises allowing a herbicidally effective amount of at least one tricyclic benzoylpyrazole derivative of the formula I or an agriculturally useful salt of I as claimed in claim 1 to act on plants, their habitat and/or on seed.

17. The use of tricyclic benzoylpyrazole derivatives of the formula I or their agriculturally useful salts as claimed in claim 1 as herbicides.

MARKED UP VERSION OF AMENDED CLAIMS - OZ 49828

3. A tricyclic benzoylpyrazole derivative of the formula I as claimed in claim 1 [or 2] where R^9 is IIa.

4. A tricyclic benzoylpyrazole derivative of the formula I as claimed in claim 1 [any of claims 1 to 3] where

Y together with the two carbons to which it is attached forms a heterocycle selected from the following group: dihydropyrazolediyl, dihydroisoxazolediyl, pyrazolediyl, isoxazolediyl or pyrimidinediyl.

5. A tricyclic benzoylpyrazole derivative of the formula I as claimed in claim 1 [any of claims 1 to 4] where

R^1, R^2 are hydrogen

R^3 is C_1-C_6-alkyl;

R^4 is nitro, halogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkoxy, C_1-C_6-alkylthio or C_1-C_6-alkylsulfonyl;

R^5 is hydrogen;

1 is 0 or 1.

6. A tricyclic benzoylpyrazole derivative of the formula I as claimed in claim 1 [any of claims 1 to 5] where

R^{10} is hyroxyl;

R^{11} is C_1-C_6-alkyl or C_3-C_6-cycloalkyl;

R^{12} is hydrogen or C_1-C_6-alkyl.

MARKED UP VERSION OF AMENDED CLAIMS - OZ 49828

14. A composition, comprising a herbicidally effective amount of at least one tricyclic benzoylpyrazole derivative of the formula I or an agriculturally useful salt of I as claimed in <u>claim 1</u> [claims 1 to 6] and auxiliaries which are customary for formulating crop protection agents.

15. A process for preparing compositions as claimed in claim 14, which comprises mixing a herbicidally effective amount of at least one tricyclic benzoylpyrazole derivative of the formula I or an agriculturally useful salt of I [as claimed in claims 1 to 6] and auxiliaries which are customary for formulating crop protection agents.

16. A method for controlling undesirable vegetation, which comprises allowing a herbicidally effective amount of at least one tricyclic benzoylpyrazole derivative of the formula I or an agriculturally useful salt of I as claimed in <u>claim 1</u> [claims 1 to 6] to act on plants, their habitat and/or on seed.

17. The use of tricyclic benzoylpyrazole derivatives of the formula I or their agriculturally useful salts as claimed in <u>claim 1</u> [claims 1 to 6] as herbicides.

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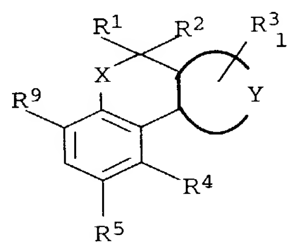
Tricyclic benzoylpyrazole derivatives

The present invention relates to novel tricyclic benzoylpyrazole derivatives of the formula I



I

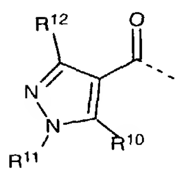
where:

X	is oxygen, sulfur, S=O, $S(=O)_2$, CR^6R^7, NR^8 or a bond;
Y	together with the two carbons to which it is attached forms a saturated, partially saturated or unsaturated 5- or 6-membered heterocycle which contains one to three identical or different heteroatoms selected from the following group: oxygen, sulfur or nitrogen;
R^1,R^2,R^6,R^7	are hydrogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkoxy or C_1-C_6-haloalkoxy;
R^3	is halogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkoxy or C_1-C_6-haloalkoxy;
R^4	is hydrogen, nitro, halogen, cyano, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkoxy, C_1-C_6-haloalkoxy, C_1-C_6-alkylthio, C_1-C_6-haloalkylthio, C_1-C_6-alkylsulfinyl, C_1-C_6-haloalkylsulfinyl, C_1-C_6-alkylsulfonyl, C_1-C_6-haloalkylsulfonyl, aminosulfonyl, N-(C_1-C_6-alkyl)aminosulfonyl, N,N-di(C_1-C_6-alkyl)aminosulfonyl, N-(C_1-C_6-alkylsulfonyl)amino, N-(C_1-C_6-haloalkylsulfonyl)amino, N-(C_1-C_6-alkyl)-N-(C_1-C_6-alkylsulfonyl)amino or N-(C_1-C_6-alkyl)-N-(C_1-C_6-haloalkylsulfonyl)amino;
R^5	is hydrogen, C_1-C_6-alkyl or halogen;

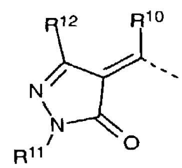
R^8 is hydrogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkylcarbonyl, formyl, C_1-C_6-alkoxycarbonyl, C_1-C_6-haloalkoxycarbonyl, C_1-C_6-alkylsulfonyl or C_1-C_6-haloalkylsulfonyl;

l is 0, 1 or 2;

R^9 is a radical IIa or IIb



IIa



IIb

where

R^{10} is hydroxyl, mercapto, halogen, OR^{13}, SR^{13}, SO_2R^{14}, $NR^{15}R^{16}$ or N-bonded heterocyclyl, where the heterocyclyl radical may be partially or fully halogenated and/or may carry one to three of the following radicals:
nitro, cyano, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkoxy or C_1-C_4-haloalkoxy;

R^{11} is hydrogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_3-C_6-cycloalkyl, hydroxyl, C_1-C_6-alkoxy or C_1-C_6-haloalkoxy;

R^{12} is hydrogen, halogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl, hydroxyl, C_1-C_6-alkoxy, C_1-C_6-haloalkoxy, C_1-C_6-alkylthio or C_1-C_6-haloalkylthio;

R^{13} is C_1-C_6-alkyl, C_3-C_6-alkenyl, C_3-C_6-haloalkenyl, C_3-C_6-alkynyl, C_3-C_6-haloalkynyl, C_3-C_6-cycloalkyl, C_1-C_{20}-alkylcarbonyl, C_2-C_{20}-alkenylcarbonyl, C_2-C_6-alkynylcarbonyl, C_3-C_6-cycloalkylcarbonyl, C_1-C_6-alkoxycarbonyl, C_3-C_6-alkenyloxycarbonyl, C_3-C_6-alkynyloxycarbonyl, C_1-C_6-alkylthiocarbonyl, C_1-C_6-alkylaminocarbonyl, C_3-C_6-alkenylaminocarbonyl, C_3-C_6-alkynylaminocarbonyl, N,N-di(C_1-C_6-alkyl)aminocarbonyl, N-(C_3-C_6-alkenyl)-N-(C_1-C_6-alkyl)aminocarbonyl, N-(C_3-C_6-alkynyl)-N-(C_1-C_6-alkyl)aminocarbonyl,

N-(C_1-C_6-alkoxy)-N-(C_1-C_6-alkyl)aminocarbonyl, N-(C_3-C_6-alkenyl)-N-(C_1-C_6-alkoxy)aminocarbonyl, N-(C_3-C_6-alkynyl)-N-(C_1-C_6-alkoxy)aminocarbonyl, di(C_1-C_6-alkyl)aminothiocarbonyl, C_1-C_6-alkylcarbonyl-C_1-C_6-alkyl, C_1-C_6-alkoxyimino-C_1-C_6-alkyl, N-(C_1-C_6-alkylamino)imino-C_1-C_6-alkyl or N,N-di(C_1-C_6-alkylamino)imino-C_1-C_6-alkyl, where the abovementioned alkyl, cycloalkyl and alkoxy radicals may be partially or fully halogenated and/or may carry one to three of the following groups:
cyano, C_1-C_4-alkoxy, C_1-C_4-alkylthio, di(C_1-C_4-alkyl)amino, C_1-C_4-alkylcarbonyl, C_1-C_4-akoxycarbonyl, C_1-C_4-alkoxy-C_1-C_4-alkoxycarbonyl, di(C_1-C_4-alkyl)amino-C_1-C_4-alkoxycarbonyl, hydroxycarbonyl, C_1-C_4-alkylaminocarbonyl, di(C_1-C_4-alkyl)aminocarbonyl, aminocarbonyl, C_1-C_4-alkylcarbonyloxy or C_3-C_6-cycloalkyl;

is phenyl, heterocyclyl, phenyl-C_1-C_6-alkyl, heterocyclyl-C_1-C_6-alkyl, phenylcarbonyl-C_1-C_6-alkyl, heterocyclylcarbonyl-C_1-C_6-alkyl, phenylcarbonyl, heterocyclylcarbonyl, phenoxycarbonyl, phenyloxythiocarbonyl, heterocyclyloxycarbonyl, heterocyclyloxythiocarbonyl, phenylaminocarbonyl, N-(C_1-C_6-alkyl)-N-(phenyl)aminocarbonyl, heterocyclylaminocarbonyl, N-(C_1-C_6-alkyl)-N-(heterocyclyl)aminocarbonyl, phenyl-C_2-C_6-alkenylcarbonyl or heterocyclyl-C_2-C_6-alkenylcarbonyl, where the phenyl and the heterocyclyl radical of the 18 lastmentioned substituents may be partially or fully halogenated and/or may carry one to three of the following radicals:
nitro, cyano, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkoxy, C_1-C_4-haloalkoxy, heterocyclyl or N-bonded heterocyclyl, where the two lastmentioned substituents for their part may be partially or fully halogenated and/or may carry one to three of the following radicals:
nitro, cyano, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkoxy or C_1-C_4-haloalkoxy;

R^{14} is C_1-C_6-alkyl, C_3-C_6-alkenyl, C_3-C_6-haloalkenyl, C_3-C_6-alkynyl, C_3-C_6-haloalkynyl, C_3-C_6-cycloalkyl, C_1-C_6-alkoxy, di(C_1-C_6-alkyl)amino or di(C_1-C_6-haloalkyl)amino, where the abovementioned alkyl, cycloalkyl and alkoxy radicals may be partially or fully halogenated and/or may carry one to three of the following groups: cyano, C_1-C_4-alkoxy, C_1-C_4-alkylthio, di(C_1-C_4-alkyl)amino, C_1-C_4-alkylcarbonyl, C_1-C_4-alkoxycarbonyl, C_1-C_4-alkoxy-C_1-C_4-alkoxycarbonyl, di(C_1-C_4-alkyl)amino-C_1-C_4-alkoxycarbonyl, hydroxycarbonyl, C_1-C_4-alkylaminocarbonyl, di(C_1-C_4-alkyl)aminocarbonyl, aminocarbonyl, C_1-C_4-alkylcarbonyloxy or C_3-C_6-cycloalkyl;

is phenyl, heterocyclyl, phenyl-C_1-C_6-alkyl, heterocyclyl-C_1-C_6-alkyl, phenoxy, heterocyclyloxy, where the phenyl and the heterocyclyl radical of the lastmentioned substituents may be partially or fully halogenated and/or may carry one to three of the following radicals: nitro, cyano, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkoxy or C_1-C_4-haloalkoxy;

R^{15} is C_1-C_6-alkyl, C_3-C_6-alkenyl, C_3-C_6-haloalkenyl, C_3-C_6-alkynyl, C_3-C_6-haloalkynyl, C_3-C_6-cycloalkyl, C_1-C_6-alkoxy, C_3-C_6-alkenyloxy, C_3-C_6-alkynyloxy, di(C_1-C_6-alkyl)amino or C_1-C_6-alkylcarbonylamino, where the abovementioned alkyl, cycloalkyl and alkoxy radicals may be partially or fully halogenated and/or may carry one to three radicals of the following group: cyano, C_1-C_4-alkoxy, C_1-C_4-alkylthio, di(C_1-C_4-alkyl)amino, C_1-C_4-alkylcarbonyl, C_1-C_4-alkoxycarbonyl, C_1-C_4-alkoxy-C_1-C_4-alkoxycarbonyl, di(C_1-C_4-alkyl)amino-C_1-C_4-alkoxycarbonyl, hydroxycarbonyl, C_1-C_4-alkylaminocarbonyl, di(C_1-C_4-alkyl)aminocarbonyl, aminocarbonyl, C_1-C_4-alkylcarbonyloxy or C_3-C_6-cycloalkyl;

is phenyl, heterocyclyl, phenyl-C_1-C_6-alkyl or heterocyclyl-C_1-C_6-alkyl, where the phenyl or heterocyclyl radical of the four lastmentioned

substituents may be partially or fully halogenated and/or may carry one to three of the following radicals:
nitro, cyano, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkoxy or C_1-C_4-haloalkoxy;

R^{16} is C_1-C_6-alkyl, C_3-C_6-alkenyl, C_3-C_6-alkynyl or C_1-C_6-alkylcarbonyl;

and their agriculturally useful salts.

Moreover, the invention relates to processes and intermediates for preparing compounds of the formula I, to compositions comprising them, and to the use of these derivatives or of the compositions comprising them for controlling harmful plants.

WO 97/19087 and EP-A 860 441 disclose tricyclic compounds which are characterized in that the respective benzoyl unit that they contain is fused via positions 3 and 4 with a bicycle. However, the herbicidal properties of the prior-art compounds and their compatibility with crop plants are not entirely satisfactory. It is an object of the present invention to provide novel, biologically, in particular herbicidally, active compounds having improved properties.

We have found that this object is achieved by the tricyclic benzoylpyrazole derivatives of the formula I and their herbicidal action.

Furthermore, we have found processes and intermediates for synthesizing the compounds of the formula I. Likewise, we have found herbicidal compositions which comprise the compounds I and have very good herbicidal action. Moreover, we have found processes for preparing these compositions and methods for controlling undesirable vegetation using the compounds I.

Depending on the substitution pattern, the compounds of the formula I can contain one or more chiral centers, in which case they are present as enantiomers or diastereomer mixtures. The invention provides both the pure enantiomers or diastereomers and their mixtures.

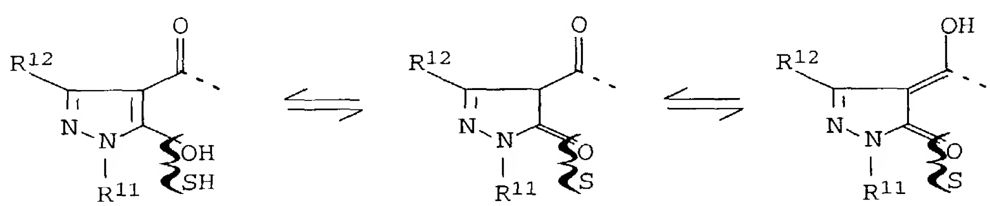
The compounds of the formula I can also be present in the form of their agriculturally useful salts, the type of salt generally being immaterial. Generally suitable are the salts of those cations or the acid addition salts of those acids whose cations

and anions, respectively, do not negatively affect the herbicidal action of the compounds I.

Suitable cations are, in particular, ions of the alkali metals, preferably lithium, sodium and potassium, of the alkaline earth metals, preferably calcium and magnesium, and of the transition metals, preferably manganese, copper, zinc and iron, and also ammonium, where, if desired, one to four hydrogen atoms may be replaced by C_1-C_4-alkyl, hydroxy-C_1-C_4-alkyl, C_1-C_4-alkoxy-C_1-C_4-alkyl, hydroxy-C_1-C_4-alkoxy-C_1-C_4-alkyl, phenyl or benzyl, preferably ammonium, dimethylammonium, diisopropylammonium, tetramethylammonium, tetrabutylammonium, 2-(2-hydroxyeth-1-oxy)eth-1-ylammonium, di(2-hydroxyeth-1-yl)ammonium, trimethylbenzylammonium, furthermore phosphonium ions, sulfonium ions, preferably tri(C_1-C_4-alkyl)sulfonium, and sulfoxonium ions, preferably tri(C_1-C_4-alkyl)sulfoxonium.

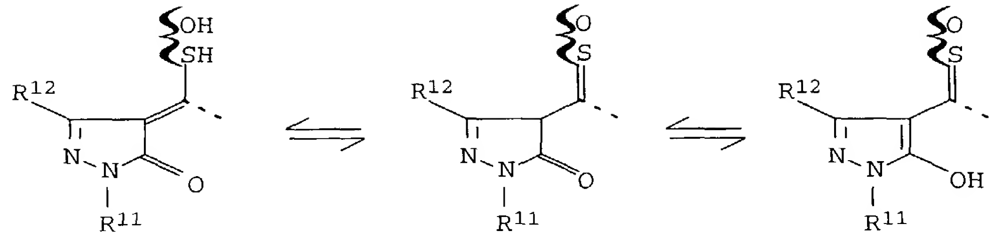
Anions of useful acid addition salts are primarily chloride, bromide, fluoride, hydrogen sulfate, sulfate, dihydrogen phosphate, hydrogen phosphate, nitrate, hydrogen carbonate, carbonate, hexafluorosilicate, hexafluorophosphate, benzoate and the anions of C_1-C_4-alkanoic acids, preferably formate, acetate, propionate and butyrate.

In the case of R^{10} = hydroxyl or mercapto, IIa also represents the tautomeric forms IIa' and IIa''



IIa IIa' IIa''

Likewise, in the case of R^{10} = hydroxyl or mercapto, IIb also represents the tautomeric forms IIb' and IIb''



IIb IIb' IIb''

The organic molecular moieties mentioned for the substituents R^1-R^{17} or as radicals on phenyl and heterocyclyl radicals are collective terms for individual enumerations of the individual group members. All hydrocarbon chains, i.e. all alkyl, haloalkyl, hydroxyalkyl, alkoxy, haloalkoxy, alkylthio, haloalkylthio, alkylsulfinyl, haloalkylsulfinyl, alkylsulfonyl, haloalkylsulfonyl, N-alkylaminosulfonyl, N,N-dialkylaminosulfonyl, N-alkylamino, N,N-dialkylamino, N-haloalkylamino, N,N-dihaloalkylamino, N-alkylsulfonylamino, N-haloalkylsulfonylamino, N-alkyl-N-alkylsulfonylamino, N-alkyl-N-haloalkylsulfonylamino, alkylcarbonyl, alkoxycarbonyl, haloalkoxycarbonyl, alkylthiocarbonyl, alkylcarbonyloxy, alkylaminocarbonyl, dialkylaminocarbonyl, dialkylaminothiocarbonyl, alkoxyalkyl, hydroxyalkoxyalkyl, alkylcarbonylalkyl, alkoxyiminoalkyl, N-(alkylamino)iminoalkyl, N-(dialkylamino)iminoalkyl, phenylalkenylcarbonyl, heterocyclylalkenylcarbonyl, N-alkoxy-N-alkylaminocarbonyl, N-alkyl-N-phenylaminocarbonyl, N-alkyl-N-heterocyclylaminocarbonyl, phenylalkyl, heterocyclylalkyl, phenylcarbonylalkyl, heterocyclylcarbonylalkyl, dialkylaminoalkoxycarbonyl, alkoxyalkoxycarbonyl, alkenylcarbonyl, alkenyloxycarbonyl, alkenylaminocarbonyl, N-alkenyl-N-alkylaminocarbonyl, N-alkenyl-N-alkoxyaminocarbonyl, alkynylcarbonyl, alkynyloxycarbonyl, alkynylaminocarbonyl, N-alkynyl-N-alkylaminocarbonyl, N-alkynyl-N-alkoxyaminocarbonyl, alkenyl, alkynyl, haloalkenyl, haloalkynyl, alkenyloxy and alkynyloxy moieties, may be straight-chain or branched. Unless indicated otherwise, halogenated substituents preferably carry one to five identical or different halogen atoms. The term halogen denotes in each case fluorine, chlorine, bromine or iodine.

Examples of other meanings are:

- C_1-C_4-alkyl and the alkyl moieties of hydroxy-C_1-C_4-alkyl: for example methyl, ethyl, propyl, 1-methylethyl, butyl, 1-methylpropyl, 2-methylpropyl or 1,1-dimethylethyl;

- C_1-C_6-alkyl, and the alkyl moieties of C_1-C_6-alkylcarbonyl-C_1-C_6-alkyl, C_1-C_6-alkoxyimino-C_1-C_6-alkyl, N-(C_1-C_6-alkylamino)imino-C_1-C_6-alkyl, N-(di-C_1-C_6-alkylamino)imino-C_1-C_6-alkyl, N-(C_1-C_6-alkoxy)-N-(C_1-C_6-alkyl)aminocarbonyl, N-(C_3-C_6-alkenyl)-N-(C_1-C_6-alkyl)aminocarbonyl, N-(C_3-C_6-alkynyl)-N-(C_1-C_6-alkyl)aminocarbonyl, N-(C_1-C_6-alkyl)-N-phenylaminocarbonyl, N-(C_1-C_6-alkyl)-N-heterocyclylaminocarbonyl, phenyl-C_1-C_6-alkyl, N-(C_1-C_6-alkyl)-N-(C_1-C_6-alkylsulfonyl)amino, N-(C_1-C_6-alkyl)-N-(C_1-C_6-haloalkylsulfonyl)amino, heterocyclyl-C_1-C_6-alkyl, phenylcarbonyl-C_1-C_6-alkyl, heterocyclylcarbonyl-C_1-C_6-alkyl: C_1-C_4-alkyl as mentioned above, and also, for example, pentyl, 1-methylbutyl, 2-methylbutyl, 3-methylbutyl, 2,2-dimethylpropyl, 1-ethylpropyl, hexyl, 1,1-dimethylpropyl, 1,2-dimethylpropyl, 1-methylpentyl, 2-methylpentyl, 3-methylpentyl, 4-methylpentyl, 1,1-dimethylbutyl, 1,2-dimethylbutyl, 1,3-dimethylbutyl, 2,2-dimethylbutyl, 2,3-dimethylbutyl, 3,3-dimethylbutyl, 1-ethylbutyl, 2-ethylbutyl, 1,1,2-trimethylpropyl, 1-ethyl-1-methylpropyl or 1-ethyl-3-methylpropyl;

- C_1-C_4-haloalkyl: a C_1-C_4-alkyl radical as mentioned above which is partially or fully substituted by fluorine, chlorine, bromine and/or iodine, i.e., for example, chloromethyl, dichloromethyl, trichloromethyl, fluoromethyl, difluoromethyl, trifluoromethyl, chlorofluoromethyl, dichlorofluoromethyl, chlorodifluoromethyl, 2-fluoroethyl, 2-chloroethyl, 2-bromoethyl, 2-iodoethyl, 2,2-difluoroethyl, 2,2,2-trifluoroethyl, 2-chloro-2-fluoroethyl, 2-chloro-2,2-difluoroethyl, 2,2-dichloro-2-fluoroethyl, 2,2,2-trichloroethyl, pentafluoroethyl, 2-fluoropropyl, 3-fluoropropyl, 2,2-difluoropropyl, 2,3-difluoropropyl, 2-chloropropyl, 3-chloropropyl, 2,3-dichloropropyl, 2-bromopropyl, 3-bromopropyl, 3,3,3-trifluoropropyl, 3,3,3-trichloropropyl, 2,2,3,3,3-pentafluoropropyl, heptafluoropropyl, 1-(fluoromethyl)-2-fluoroethyl, 1-(chloromethyl)-2-chloroethyl, 1-(bromomethyl)-2-bromoethyl, 4-fluorobutyl, 4-chlorobutyl, 4-bromobutyl or nonafluorobutyl;

- C_1-C_6-haloalkyl, and the haloalkyl moieties of N-C_1-C_6-haloalkylamino and N,N-(di-C_1-C_6-haloalkyl)amino: C_1-C_4-haloalkyl as mentioned above, and also, for example, 5-fluoropentyl, 5-chloropentyl, 5-bromopentyl, 5-iodopentyl, undecafluoropentyl, 6-fluorohexyl, 6-chlorohexyl, 6-bromohexyl, 6-iodohexyl or dodecafluorohexyl;

- C_1-C_4-alkoxy: for example methoxy, ethoxy, propoxy, 1-methylethoxy, butoxy, 1-methylpropoxy, 2-methylpropoxy or 1,1-dimethylethoxy;

- C_1-C_6-alkoxy, and the alkoxy moieties of C_1-C_6-alkoxyimino-C_1-C_6-alkyl, N-(C_1-C_6-alkoxy)-N-(C_1-C_6-alkyl)aminocarbonyl, N-(C_3-C_6-alkenyl)-N-(C_1-C_6-alkoxy)aminocarbonyl and N-(C_3-C_6-alkynyl)-N-(C_1-C_6-alkoxy)aminocarbonyl: C_1-C_4-alkoxy as mentioned above, and also, for example, pentoxy, 1-methylbutoxy, 2-methylbutoxy, 3-methylbutoxy, 1,1-dimethylpropoxy, 1,2-dimethylpropoxy, 2,2-dimethylpropoxy, 1-ethylpropoxy, hexoxy, 1-methylpentoxy, 2-methylpentoxy, 3-methylpentoxy, 4-methylpentoxy, 1,1-dimethylbutoxy, 1,2-dimethylbutoxy, 1,3-dimethylbutoxy, 2,2-dimethylbutoxy, 2,3-dimethylbutoxy, 3,3-dimethylbutoxy, 1-ethylbutoxy, 2-ethylbutoxy, 1,1,2-trimethylpropoxy, 1,2,2-trimethylpropoxy, 1-ethyl-1-methylpropoxy or 1-ethyl-2-methylpropoxy;

- C_1-C_4-haloalkoxy: a C_1-C_4-alkoxy radical as mentioned above which is partially or fully substituted by fluorine, chlorine, bromine and/or iodine, i.e., for example, fluoromethoxy, difluoromethoxy, trifluoromethoxy, chlorodifluoromethoxy, bromodifluoromethoxy, 2-fluoroethoxy, 2-chloroethoxy, 2-bromoethoxy, 2-iodoethoxy, 2,2-difluoroethoxy, 2,2,2-trifluoroethoxy, 2-chloro-2-fluoroethoxy, 2-chloro-2,2-difluoroethoxy, 2,2-dichloro-2-fluoroethoxy, 2,2,2-trichloroethoxy, pentafluoroethoxy, 2-fluoropropoxy, 3-fluoropropoxy, 2-chloropropoxy, 3-chloropropoxy, 2-bromopropoxy, 3-bromopropoxy, 2,2-difluoropropoxy, 2,3-difluoropropoxy, 2,3-dichloropropoxy, 3,3,3-trifluoropropoxy, 3,3,3-trichloropropoxy, 2,2,3,3,3-pentafluoropropoxy, heptafluoropropoxy, 1-(fluoromethyl)-2-fluoroethoxy, 1-(chloromethyl)-2-chloroethoxy, 1-(bromomethyl)-2-bromoethoxy, 4-fluorobutoxy, 4-chlorobutoxy, 4-bromobutoxy or nonafluorobutoxy;

- C_1-C_6-haloalkoxy: C_1-C_4-haloalkoxy as mentioned above, and also, for example, 5-fluoropentoxy, 5-chloropentoxy, 5-bromopentoxy, 5-iodopentoxy, undecafluoropentoxy, 6-fluorohexoxy, 6-chlorohexoxy, 6-bromohexoxy, 6-iodohexoxy or dodecafluorohexoxy;

- C_1-C_4-alkylthio: for example methylthio, ethylthio, propylthio, 1-methylethylthio, butylthio, 1-methylpropylthio, 2-methylpropylthio or 1,1-dimethylethylthio;

- C_1-C_6-alkylthio, and the alkylthio moieties of C_1-C_6-alkylthiocarbonyl: C_1-C_4-alkylthio as mentioned above and also, for example, pentylthio, 1-methylbutylthio, 2-methylbutylthio, 3-methylbutylthio, 2,2-dimethylpropylthio, 1-ethylpropylthio, hexylthio, 1,1-dimethylpropylthio, 1,2-dimethylpropylthio, 1-methylpentylthio, 2-methylpentylthio, 3-methylpentylthio, 4-methylpentylthio, 1,1-dimethylbutylthio, 1,2-dimethylbutylthio, 1,3-dimethylbutylthio, 2,2-dimethylbutylthio, 2,3-dimethylbutylthio, 3,3-dimethylbutylthio, 1-ethylbutylthio, 2-ethylbutylthio, 1,1,2-trimethylpropylthio, 1,2,2-trimethylpropylthio, 1-ethyl-1-methylpropylthio or 1-ethyl-2-methylpropylthio;

- C_1-C_6-haloalkylthio: a C_1-C_6-alkylthio radical as mentioned above which is partially or fully substituted by fluorine, chlorine, bromine and/or iodine, i.e., for example, fluoromethylthio, difluoromethylthio, trifluoromethylthio, chlorodifluoromethylthio, bromodifluoromethylthio, 2-fluoroethylthio, 2-chloroethylthio, 2-bromoethylthio, 2-iodoethylthio, 2,2-difluoroethylthio, 2,2,2-trifluoroethylthio, 2,2,2-trichloroethylthio, 2-chloro-2-fluoroethylthio, 2-chloro-2,2-difluoroethylthio, 2,2-dichloro-2-fluoroethylthio, pentafluoroethylthio, 2-fluoropropylthio, 3-fluoropropylthio, 2-chloropropylthio, 3-chloropropylthio, 2-bromopropylthio, 3-bromopropylthio, 2,2-difluoropropylthio, 2,3-difluoropropylthio, 2,3-dichloropropylthio, 3,3,3-trifluoropropylthio, 3,3,3-trichloropropylthio, 2,2,3,3,3-pentafluoropropylthio, heptafluoropropylthio, 1-(fluoromethyl)-2-fluoroethylthio, 1-(chloromethyl)-2-chloroethylthio, 1-(bromomethyl)-2-bromoethylthio, 4-fluorobutylthio, 4-chlorobutylthio, 4-bromobutylthio, nonafluorobutylthio, 5-fluoropentylthio, 5-chloropentylthio, 5-bromopentylthio, 5-iodopentylthio, undecafluoropentylthio, 6-fluorohexylthio,

6-chlorohexylthio, 6-bromohexylthio, 6-iodohexylthio or dodecafluorohexylthio;

- C_1-C_6-alkylsulfinyl (C_1-C_6-alkyl-S(=O)-): for example methylsulfinyl, ethylsulfinyl, propylsulfinyl, 1-methylethylsulfinyl, butylsulfinyl, 1-methylpropylsulfinyl, 2-methylpropylsulfinyl, 1,1-dimethylethylsulfinyl, pentylsulfinyl, 1-methylbutylsulfinyl, 2-methylbutylsulfinyl, 3-methylbutylsulfinyl, 2,2-dimethylpropylsulfinyl, 1-ethylpropylsulfinyl, 1,1-dimethylpropylsulfinyl, 1,2-dimethylpropylsulfinyl, hexylsulfinyl, 1-methylpentylsulfinyl, 2-methylpentylsulfinyl, 3-methylpentylsulfinyl, 4-methylpentylsulfinyl, 1,1-dimethylbutylsulfinyl, 1,2-dimethylbutylsulfinyl, 1,3-dimethylbutylsulfinyl, 2,2-dimethylbutylsulfinyl, 2,3-dimethylbutylsulfinyl, 3,3-dimethylbutylsulfinyl, 1-ethylbutylsulfinyl, 2-ethylbutylsulfinyl, 1,1,2-trimethylpropylsulfinyl, 1,2,2-trimethylpropylsulfinyl, 1-ethyl-1-methylpropylsulfinyl or 1-ethyl-2-methylpropylsulfinyl;

- C_1-C_6-haloalkylsulfinyl: a C_1-C_6-alkylsulfinyl radical as mentioned above which is partially or fully substituted by fluorine, chlorine, bromine and/or iodine, i.e., for example, fluoromethylsulfinyl, difluoromethylsulfinyl, trifluoromethylsulfinyl, chlorodifluoromethylsulfinyl, bromodifluoromethylsulfinyl, 2-fluoroethylsulfinyl, 2-chloroethylsulfinyl, 2-bromoethylsulfinyl, 2-iodoethylsulfinyl, 2,2-difluoroethylsulfinyl, 2,2,2-trifluoroethylsulfinyl, 2,2,2-trichloroethylsulfinyl, 2-chloro-2-fluoroethylsulfinyl, 2-chloro-2,2-difluoroethylsulfinyl, 2,2-dichloro-2-fluoroethylsulfinyl, pentafluoroethylsulfinyl, 2-fluoropropylsulfinyl, 3-fluoropropylsulfinyl, 2-chloropropylsulfinyl, 3-chloropropylsulfinyl, 2-bromopropylsulfinyl, 3-bromopropylsulfinyl, 2,2-difluoropropylsulfinyl, 2,3-difluoropropylsulfinyl, 2,3-dichloropropylsulfinyl, 3,3,3-trifluoropropylsulfinyl, 3,3,3-trichloropropylsulfinyl, 2,2,3,3,3-pentafluoropropylsulfinyl, heptafluoropropylsulfinyl, 1-(fluoromethyl)-2-fluoroethylsulfinyl, 1-(chloromethyl)-2-chloroethylsulfinyl, 1-(bromomethyl)-2-bromoethylsulfinyl, 4-fluorobutylsulfinyl, 4-chlorobutylsulfinyl, 4-bromobutylsulfinyl, nonafluorobutylsulfinyl, 5-fluoropentylsulfinyl, 5-chloropentylsulfinyl, 5-bromopentylsulfinyl,

5-iodopentylsulfinyl, undecafluoropentylsulfinyl, 6-fluorohexylsulfinyl, 6-chlorohexylsulfinyl, 6-bromohexylsulfinyl, 6-iodohexylsulfinyl or dodecafluorohexylsulfinyl;

- C_1-C_6-alkylsulfonyl (C_1-C_6-alkyl-S(=O)$_2$-), and the alkylsulfonyl radicals of N-(C_1-C_6-alkylsulfonyl)amino and N-(C_1-C_6-alkyl)-N-(C_1-C_6-alkylsulfonyl)amino: for example methylsulfonyl, ethylsulfonyl, propylsulfonyl, 1-methylethylsulfonyl, butylsulfonyl, 1-methylpropylsulfonyl, 2-methylpropylsulfonyl, 1,1-dimethylethylsulfonyl, pentylsulfonyl, 1-methylbutylsulfonyl, 2-methylbutylsulfonyl, 3-methylbutylsulfonyl, 1,1-dimethylpropylsulfonyl, 1,2-dimethylpropylsulfonyl, 2,2-dimethylpropylsulfonyl, 1-ethylpropylsulfonyl, hexylsulfonyl, 1-methylpentylsulfonyl, 2-methylpentylsulfonyl, 3-methylpentylsulfonyl, 4-methylpentylsulfonyl, 1,1-dimethylbutylsulfonyl, 1,2-dimethylbutylsulfonyl, 1,3-dimethylbutylsulfonyl, 2,2-dimethylbutylsulfonyl, 2,3-dimethylbutylsulfonyl, 3,3-dimethylbutylsulfonyl, 1-ethylbutylsulfonyl, 2-ethylbutylsulfonyl, 1,1,2-trimethylpropylsulfonyl, 1,2,2-trimethylpropylsulfonyl, 1-ethyl-1-methylpropylsulfonyl or 1-ethyl-2-methylpropylsulfonyl;

- C_1-C_6-haloalkylsulfonyl, and the haloalkylsulfonyl radicals of N-(C_1-C_6-haloalkylsulfonyl)amino and N-(C_1-C_6-alkyl)-N-(C_1-C_6-haloalkylsulfonyl)amino: a C_1-C_6-alkylsulfonyl radical as mentioned above which is partially or fully substituted by fluorine, chlorine, bromine and/or iodine, i.e., for example, fluoromethylsulfonyl, difluoromethylsulfonyl, trifluoromethylsulfonyl, chlorodifluoromethylsulfonyl, bromodifluoromethylsulfonyl, 2-fluoroethylsulfonyl, 2-chloroethylsulfonyl, 2-bromoethylsulfonyl, 2-iodoethylsulfonyl, 2,2-difluoroethylsulfonyl, 2,2,2-trifluoroethylsulfonyl, 2-chloro-2-fluoroethylsulfonyl, 2-chloro-2,2-difluoroethylsulfonyl, 2,2-dichloro-2-fluoroethylsulfonyl, 2,2,2-trichloroethylsulfonyl, pentafluoroethylsulfonyl, 2-fluoropropylsulfonyl, 3-fluoropropylsulfonyl, 2-chloropropylsulfonyl, 3-chloropropylsulfonyl, 2-bromopropylsulfonyl, 3-bromopropylsulfonyl, 2,2-difluoropropylsulfonyl, 2,3-difluoropropylsulfonyl, 2,3-dichloropropylsulfonyl, 3,3,3-trifluoropropylsulfonyl, 3,3,3-trichloropropylsulfonyl, 2,2,3,3,3-pentafluoropropylsulfonyl, heptafluoropropylsulfonyl,

1-(fluoromethyl)-2-fluoroethylsulfonyl, 1-(chloromethyl)-2-chloroethylsulfonyl, 1-(bromomethyl)-2-bromoethylsulfonyl, 4-fluorobutylsulfonyl, 4-chlorobutylsulfonyl, 4-bromobutylsulfonyl, nonafluorobutylsulfonyl, 5-fluoropentylsulfonyl, 5-chloropentylsulfonyl, 5-bromopentylsulfonyl, 5-iodopentylsulfonyl, 6-fluorohexylsulfonyl, 6-bromohexylsulfonyl, 6-iodohexylsulfonyl or dodecafluorohexylsulfonyl;

- C_1-C_6-alkylamino, and the alkylamino radicals of N-(C_1-C_6-alkylamino)imino-C_1-C_6-alkyl: for example methylamino, ethylamino, propylamino, 1-methylethylamino, butylamino, 1-methylpropylamino, 2-methylpropylamino, 1,1-dimethylethylamino, pentylamino, 1-methylbutylamino, 2-methylbutylamino, 3-methylbutylamino, 2,2-dimethylpropylamino, 1-ethylpropylamino, hexylamino, 1,1-dimethylpropylamino, 1,2-dimethylpropylamino, 1-methylpentylamino, 2-methylpentylamino, 3-methylpentylamino, 4-methylpentylamino, 1,1-dimethylbutylamino, 1,2-dimethylbutylamino, 1,3-dimethylbutylamino, 2,2-dimethylbutylamino, 2,3-dimethylbutylamino, 3,3-dimethylbutylamino, 1-ethylbutylamino, 2-ethylbutylamino, 1,1,2-trimethylpropylamino, 1,2,2-trimethylpropylamino, 1-ethyl-1-methylpropylamino or 1-ethyl-2-methylpropylamino;

- (C_1-C_6-alkylamino)sulfonyl: for example methylaminosulfonyl, ethylaminosulfonyl, propylaminosulfonyl, 1-methylethylaminosulfonyl, butylaminosulfonyl, 1-methylpropylaminosulfonyl, 2-methylpropylaminosulfonyl, 1,1-dimethylethylaminosulfonyl, pentylaminosulfonyl, 1-methylbutylaminosulfonyl, 2-methylbutylaminosulfonyl, 3-methylbutylaminosulfonyl, 2,2-dimethylpropylaminosulfonyl, 1-ethylpropylaminosulfonyl, hexylaminosulfonyl, 1,1-dimethylpropylaminosulfonyl, 1,2-dimethylpropylaminosulfonyl, 1-methylpentylaminosulfonyl, 2-methylpentylaminosulfonyl, 3-methylpentylaminosulfonyl, 4-methylpentylaminosulfonyl, 1,1-dimethylbutylaminosulfonyl, 1,2-dimethylbutylaminosulfonyl, 1,3-dimethylbutylaminosulfonyl, 2,2-dimethylbutylaminosulfonyl, 2,3-dimethylbutylaminosulfonyl, 3,3-dimethylbutylaminosulfonyl, 1-ethylbutylaminosulfonyl, 2-ethylbutylaminosulfonyl, 1,1,2-trimethylpropylaminosulfonyl, 1,2,2-trimethylpropylaminosulfonyl,

1-ethyl-1-methylpropylaminosulfonyl or 1-ethyl-2-methylpropylaminosulfonyl;

- di(C_1-C_6-alkyl)aminosulfonyl: for example N,N-dimethylaminosulfonyl, N,N-diethylaminosulfonyl, N,N-di(1-methylethyl)aminosulfonyl, N,N-dipropylaminosulfonyl, N,N-dibutylaminosulfonyl, N,N-di(1-methylpropyl)aminosulfonyl, N,N-di(2-methylpropyl)aminosulfonyl, N,N-di(1,1-dimethylethyl)aminosulfonyl, N-ethyl-N-methylaminosulfonyl, N-methyl-N-propylaminosulfonyl, N-methyl-N-(1-methylethyl)aminosulfonyl, N-butyl-N-methylaminosulfonyl, N-methyl-N-(1-methylpropyl)aminosulfonyl, N-methyl-N-(2-methylpropyl)aminosulfonyl, N-(1,1-dimethylethyl)-N-methylaminosulfonyl, N-ethyl-N-propylaminosulfonyl, N-ethyl-N-(1-methylethyl)aminosulfonyl, N-butyl-N-ethylaminosulfonyl, N-ethyl-N-(1-methylpropyl)aminosulfonyl, N-ethyl-N-(2-methylpropyl)aminosulfonyl, N-ethyl-N-(1,1-dimethylethyl)aminosulfonyl, N-(1-methylethyl)-N-propylaminosulfonyl, N-butyl-N-propylaminosulfonyl, N-(1-methylpropyl)-N-propylaminosulfonyl, N-(2-methylpropyl)-N-propylaminosulfonyl, N-(1,1-dimethylethyl)-N-propylaminosulfonyl, N-butyl-N-(1-methylethyl)aminosulfonyl, N-(1-methylethyl)-N-(1-methylpropyl)aminosulfonyl, N-(1-methylethyl)-N-(2-methylpropyl)aminosulfonyl, N-(1,1-dimethylethyl)-N-(1-methylethyl)aminosulfonyl, N-butyl-N-(1-methylpropyl)aminosulfonyl, N-butyl-N-(2-methylpropyl)aminosulfonyl, N-butyl-N-(1,1-dimethylethyl)aminosulfonyl, N-(1-methylpropyl)-N-(2-methylpropyl)aminosulfonyl, N-(1,1-dimethylethyl)-N-(1-methylpropyl)aminosulfonyl, N-(1,1-dimethylethyl)-N-(2-methylpropyl)aminosulfonyl, N-methyl-N-pentylaminosulfonyl, N-methyl-N-(1-methylbutyl)aminosulfonyl, N-methyl-N-(2-methylbutyl)aminosulfonyl, N-methyl-N-(3-methylbutyl)aminosulfonyl, N-methyl-N-(2,2-dimethylpropyl)aminosulfonyl, N-methyl-N-(1-ethylpropyl)aminosulfonyl, N-methyl-N-hexylaminosulfonyl, N-methyl-N-(1,1-dimethylpropyl)aminosulfonyl, N-methyl-N-(1,2-dimethylpropyl)aminosulfonyl,

N-methyl-N-(1-methylpentyl)aminosulfonyl, N-methyl-N-(2-methylpentyl)aminosulfonyl, N-methyl-N-(3-methylpentyl)aminosulfonyl, N-methyl-N-(4-methylpentyl)aminosulfonyl, N-methyl-N-(1,1-dimethylbutyl)aminosulfonyl, N-methyl-N-(1,2-dimethylbutyl)aminosulfonyl, N-methyl-N-(1,3-dimethylbutyl)aminosulfonyl, N-methyl-N-(2,2-dimethylbutyl)aminosulfonyl, N-methyl-N-(2,3-dimethylbutyl)aminosulfonyl, N-methyl-N-(3,3-dimethylbutyl)aminosulfonyl, N-methyl-N-(1-ethylbutyl)aminosulfonyl, N-methyl-N-(2-ethylbutyl)aminosulfonyl, N-methyl-N-(1,1,2-trimethylpropyl)aminosulfonyl, N-methyl-N-(1,2,2-trimethylpropyl)aminosulfonyl, N-methyl-N-(1-ethyl-1-methylpropyl)aminosulfonyl, N-methyl-N-(1-ethyl-2-methylpropyl)aminosulfonyl, N-ethyl-N-pentylaminosulfonyl, N-ethyl-N-(1-methylbutyl)aminosulfonyl, N-ethyl-N-(2-methylbutyl)aminosulfonyl, N-ethyl-N-(3-methylbutyl)aminosulfonyl, N-ethyl-N-(2,2-dimethylpropyl)aminosulfonyl, N-ethyl-N-(1-ethylpropyl)aminosulfonyl, N-ethyl-N-hexylaminosulfonyl, N-ethyl-N-(1,1-dimethylpropyl)aminosulfonyl, N-ethyl-N-(1,2-dimethylpropyl)aminosulfonyl, N-ethyl-N-(1-methylpentyl)aminosulfonyl, N-ethyl-N-(2-methylpentyl)aminosulfonyl, N-ethyl-N-(3-methylpentyl)aminosulfonyl, N-ethyl-N-(4-methylpentyl)aminosulfonyl, N-ethyl-N-(1,1-dimethylbutyl)aminosulfonyl, N-ethyl-N-(1,2-dimethylbutyl)aminosulfonyl, N-ethyl-N-(1,3-dimethylbutyl)aminosulfonyl, N-ethyl-N-(2,2-dimethylbutyl)aminosulfonyl, N-ethyl-N-(2,3-dimethylbutyl)aminosulfonyl, N-ethyl-N-(3,3-dimethylbutyl)aminosulfonyl, N-ethyl-N-(1-ethylbutyl)aminosulfonyl, N-ethyl-N-(2-ethylbutyl)aminosulfonyl, N-ethyl-N-(1,1,2-trimethylpropyl)aminosulfonyl, N-ethyl-N-(1,2,2-trimethylpropyl)aminosulfonyl, N-ethyl-N-(1-ethyl-1-methylpropyl)aminosulfonyl, N-ethyl-N-(1-ethyl-2-methylpropyl)aminosulfonyl, N-propyl-N-pentylaminosulfonyl, N-butyl-N-pentylaminosulfonyl, N,N-dipentylaminosulfonyl, N-propyl-N-hexylaminosulfonyl, N-butyl-N-hexylaminosulfonyl, N-pentyl-N-hexylaminosulfonyl or N,N-dihexylaminosulfonyl;

- di(C_1-C_4-alkyl)amino, and the dialkylamino radicals of di(C_1-C_4-alkyl)amino-C_1-C_4-alkoxycarbonyl and N-(di-C_1-C_4-alkylamino)imino-C_1-C_6-alkyl: for example N,N-dimethylamino, N,N-diethylamino, N,N-dipropylamino, N,N-di(1-methylethyl)amino, N,N-dibutylamino, N,N-di(1-methylpropyl)amino, N,N-di(2-methylpropyl)amino, N,N-di(1,1-dimethylethyl)amino, N-ethyl-N-methylamino, N-methyl-N-propylamino, N-methyl-N-(1-methylethyl)amino, N-butyl-N-methylamino, N-methyl-N-(1-methylpropyl)amino, N-methyl-N-(2-methylpropyl)amino, N-(1,1-dimethylethyl)-N-methylamino, N-ethyl-N-propylamino, N-ethyl-N-(1-methylethyl)amino, N-butyl-N-ethylamino, N-ethyl-N-(1-methylpropyl)amino, N-ethyl-N-(2-methylpropyl)amino, N-ethyl-N-(1,1-dimethylethyl)amino, N-(1-methylethyl)-N-propylamino, N-butyl-N-propylamino, N-(1-methylpropyl)-N-propylamino, N-(2-methylpropyl)-N-propylamino, N-(1,1-dimethylethyl)-N-propylamino, N-butyl-N-(1-methylethyl)amino, N-(1-methylethyl)-N-(1-methylpropyl)amino, N-(1-methylethyl)-N-(2-methylpropyl)amino, N-(1,1-dimethylethyl)-N-(1-methylethyl)amino, N-butyl-N-(1-methylpropyl)amino, N-butyl-N-(2-methylpropyl)amino, N-butyl-N-(1,1-dimethylethyl)amino, N-(1-methylpropyl)-N-(2-methylpropyl)amino, N-(1,1-dimethylethyl)-N-(1-methylpropyl)amino or N-(1,1-dimethylethyl)-N-(2-methylpropyl)amino;

- di(C_1-C_6-alkyl)amino, and the dialkylamino radicals of di(C_1-C_6-alkyl)aminoimino-C_1-C_6-alkyl: di(C_1-C_4-alkyl)amino as mentioned above, and also N,N-dipentylamino, N,N-dihexylamino, N-methyl-N-pentylamino, N-ethyl-N-pentylamino, N-methyl-N-hexylamino or N-ethyl-N-hexylamino;

- C_1-C_4-alkylcarbonyl: for example methylcarbonyl, ethylcarbonyl, propylcarbonyl, 1-methylethylcarbonyl, butylcarbonyl, 1-methylpropylcarbonyl, 2-methylpropylcarbonyl or 1,1-dimethylethylcarbonyl;

- C_1-C_6-alkylcarbonyl, and the alkylcarbonyl radicals of C_1-C_6-alkylcarbonyl-C_1-C_6-alkyl: C_1-C_4-alkylcarbonyl as mentioned above, and also, for example, pentylcarbonyl, 1-methylbutylcarbonyl, 2-methylbutylcarbonyl, 3-methylbutylcarbonyl, 2,2-dimethylpropylcarbonyl,

1-ethylpropylcarbonyl, hexylcarbonyl, 1,1-dimethylpropylcarbonyl, 1,2-dimethylpropylcarbonyl, 1-methylpentylcarbonyl, 2-methylpentylcarbonyl, 3-methylpentylcarbonyl, 4-methylpentylcarbonyl, 1,1-dimethylbutylcarbonyl, 1,2-dimethylbutylcarbonyl, 1,3-dimethylbutylcarbonyl, 2,2-dimethylbutylcarbonyl, 2,3-dimethylbutylcarbonyl, 3,3-dimethylbutylcarbonyl, 1-ethylbutylcarbonyl, 2-ethylbutylcarbonyl, 1,1,2-trimethylpropylcarbonyl, 1,2,2-trimethylpropylcarbonyl, 1-ethyl-1-methylpropylcarbonyl or 1-ethyl-2-methylpropylcarbonyl;

- C_1-C_{20}-alkylcarbonyl: C_1-C_6-alkylcarbonyl as mentioned above, and also heptylcarbonyl, octylcarbonyl, pentadecylcarbonyl or heptadecylcarbonyl;

- C_1-C_4-alkoxycarbonyl, and the alkoxycarbonyl moieties of di(C_1-C_4-alkyl)amino-C_1-C_4-alkoxycarbonyl: for example methoxycarbonyl, ethoxycarbonyl, propoxycarbonyl, 1-methylethoxycarbonyl, butoxycarbonyl, 1-methylpropoxycarbonyl, 2-methylpropoxycarbonyl or 1,1-dimethylethoxycarbonyl;

- (C_1-C_6-alkoxy)carbonyl: (C_1-C_4-alkoxy)carbonyl as mentioned above, and also, for example, pentoxycarbonyl, 1-methylbutoxycarbonyl, 2-methylbutoxycarbonyl, 3-methylbutoxycarbonyl, 2,2-dimethylpropoxycarbonyl, 1-ethylpropoxycarbonyl, hexoxycarbonyl, 1,1-dimethylpropoxycarbonyl, 1,2-dimethylpropoxycarbonyl, 1-methylpentoxycarbonyl, 2-methylpentoxycarbonyl, 3-methylpentoxycarbonyl, 4-methylpentoxycarbonyl, 1,1-dimethylbutoxycarbonyl, 1,2-dimethylbutoxycarbonyl, 1,3-dimethylbutoxycarbonyl, 2,2-dimethylbutoxycarbonyl, 2,3-dimethylbutoxycarbonyl, 3,3-dimethylbutoxycarbonyl, 1-ethylbutoxycarbonyl, 2-ethylbutoxycarbonyl, 1,1,2-trimethylpropoxycarbonyl, 1,2,2-trimethylpropoxycarbonyl, 1-ethyl-1-methyl-propoxycarbonyl or 1-ethyl-2-methyl-propoxycarbonyl;

- C_1-C_6-haloalkoxycarbonyl: a C_1-C_6-alkoxycarbonyl radical as mentioned above which is partially or fully substituted by fluorine, chlorine, bromine and/or iodine, i.e., for example, fluoromethoxycarbonyl, difluoromethoxycarbonyl, trifluoromethoxycarbonyl, chlorodifluoromethoxycarbonyl, bromodifluoromethoxycarbonyl, 2-fluoroethoxycarbonyl, 2-chloroethoxycarbonyl, 2-bromoethoxycarbonyl,

2-iodoethoxycarbonyl, 2,2-difluoroethoxycarbonyl, 2,2,2-trifluoroethoxycarbonyl, 2-chloro-2-fluoroethoxycarbonyl, 2-chloro-2,2-difluoroethoxycarbonyl, 2,2-dichloro-2-fluoroethoxycarbonyl, 2,2,2-trichloroethoxycarbonyl, pentafluoroethoxycarbonyl, 2-fluoropropoxycarbonyl, 3-fluoropropoxycarbonyl, 2-chloropropoxycarbonyl, 3-chloropropoxycarbonyl, 2-bromopropoxycarbonyl, 3-bromopropoxycarbonyl, 2,2-difluoropropoxycarbonyl, 2,3-difluoropropoxycarbonyl, 2,3-dichloropropoxycarbonyl, 3,3,3-trifluoropropoxycarbonyl, 3,3,3-trichloropropoxycarbonyl, 2,2,3,3,3-pentafluoropropoxycarbonyl, heptafluoropropoxycarbonyl, 1-(fluoromethyl)-2-fluoroethoxycarbonyl, 1-(chloromethyl)-2-chloroethoxycarbonyl, 1-(bromomethyl)-2-bromoethoxycarbonyl, 4-fluorobutoxycarbonyl, 4-chlorobutoxycarbonyl, 4-bromobutoxycarbonyl, nonafluorobutoxycarbonyl, 5-fluoropentoxycarbonyl, 5-chloropentoxycarbonyl, 5-bromopentoxycarbonyl, 5-iodopentoxycarbonyl, 6-fluorohexoxycarbonyl, 6-bromohexoxycarbonyl, 6-iodohexoxycarbonyl or dodecafluorohexoxycarbonyl;

- (C_1-C_4-alkyl)carbonyloxy: acetyloxy, ethylcarbonyloxy, propylcarbonyloxy, 1-methylethylcarbonyloxy, butylcarbonyloxy, 1-methylpropylcarbonyloxy, 2-methylpropylcarbonyloxy or 1,1-dimethylethylcarbonyloxy;

- (C_1-C_4-alkylamino)carbonyl: for example methylaminocarbonyl, ethylaminocarbonyl, propylaminocarbonyl, 1-methylethylaminocarbonyl, butylaminocarbonyl, 1-methylpropylaminocarbonyl, 2-methylpropylaminocarbonyl or 1,1-dimethylethylaminocarbonyl;

- (C_1-C_6-alkylamino)carbonyl: (C_1-C_4-alkylamino)carbonyl as mentioned above, and also, for example, pentylaminocarbonyl, 1-methylbutylaminocarbonyl, 2-methylbutylaminocarbonyl, 3-methylbutylaminocarbonyl, 2,2-dimethylpropylaminocarbonyl, 1-ethylpropylaminocarbonyl, hexylaminocarbonyl, 1,1-dimethylpropylaminocarbonyl, 1,2-dimethylpropylaminocarbonyl, 1-methylpentylaminocarbonyl, 2-methylpentylaminocarbonyl, 3-methylpentylaminocarbonyl, 4-methylpentylaminocarbonyl, 1,1-dimethylbutylaminocarbonyl, 1,2-dimethylbutylaminocarbonyl, 1,3-dimethylbutylaminocarbonyl, 2,2-dimethylbutylaminocarbonyl,

2,3-dimethylbutylaminocarbonyl, 3,3-dimethylbutylaminocarbonyl, 1-ethylbutylaminocarbonyl, 2-ethylbutylaminocarbonyl, 1,1,2-trimethylpropylaminocarbonyl, 1,2,2-trimethylpropylaminocarbonyl, 1-ethyl-1-methylpropylaminocarbonyl or 1-ethyl-2-methylpropylaminocarbonyl;

- di(C_1-C_4-alkyl)aminocarbonyl: for example N,N-dimethylaminocarbonyl, N,N-diethylaminocarbonyl, N,N-di(1-methylethyl)aminocarbonyl, N,N-dipropylaminocarbonyl, N,N-dibutylaminocarbonyl, N,N-di(1-methylpropyl)aminocarbonyl, N,N-di(2-methylpropyl)aminocarbonyl, N,N-di(1,1-dimethylethyl)aminocarbonyl, N-ethyl-N-methylaminocarbonyl, N-methyl-N-propylaminocarbonyl, N-methyl-N-(1-methylethyl)aminocarbonyl, N-butyl-N-methylaminocarbonyl, N-methyl-N-(1-methylpropyl)aminocarbonyl, N-methyl-N-(2-methylpropyl)aminocarbonyl, N-(1,1-dimethylethyl)-N-methylaminocarbonyl, N-ethyl-N-propylaminocarbonyl, N-ethyl-N-(1-methylethyl)aminocarbonyl, N-butyl-N-ethylaminocarbonyl, N-ethyl-N-(1-methylpropyl)aminocarbonyl, N-ethyl-N-(2-methylpropyl)aminocarbonyl, N-ethyl-N-(1,1-dimethylethyl)aminocarbonyl, N-(1-methylethyl)-N-propylaminocarbonyl, N-butyl-N-propylaminocarbonyl, N-(1-methylpropyl)-N-propylaminocarbonyl, N-(2-methylpropyl)-N-propylaminocarbonyl, N-(1,1-dimethylethyl)-N-propylaminocarbonyl, N-butyl-N-(1-methylethyl)aminocarbonyl, N-(1-methylethyl)-N-(1-methylpropyl)aminocarbonyl, N-(1-methylethyl)-N-(2-methylpropyl)aminocarbonyl, N-(1,1-dimethylethyl)-N-(1-methylethyl)aminocarbonyl, N-butyl-N-(1-methylpropyl)aminocarbonyl, N-butyl-N-(2-methylpropyl)aminocarbonyl, N-butyl-N-(1,1-dimethylethyl)aminocarbonyl, N-(1-methylpropyl)-N-(2-methylpropyl)aminocarbonyl, N-(1,1-dimethylethyl)-N-(1-methylpropyl)aminocarbonyl or N-(1,1-dimethylethyl)-N-(2-methylpropyl)aminocarbonyl;

- di(C_1-C_6-alkyl)aminocarbonyl: di(C_1-C_4-alkyl)aminocarbonyl as mentioned above, and also, for example, N-methyl-N-pentylaminocarbonyl,

N-methyl-N-(1-methylbutyl)aminocarbonyl,
N-Methyl-N-(2-methylbutyl)aminocarbonyl,
N-methyl-N-(3-methylbutyl)aminocarbonyl,
N-methyl-N-(2,2-dimethylpropyl)aminocarbonyl,
N-methyl-N-(1-ethylpropyl)aminocarbonyl,
N-methyl-N-hexylaminocarbonyl,
N-methyl-N-(1,1-dimethylpropyl)aminocarbonyl,
N-methyl-N-(1,2-dimethylpropyl)aminocarbonyl,
N-methyl-N-(1-methylpentyl)aminocarbonyl,
N-methyl-N-(2-methylpentyl)aminocarbonyl,
N-methyl-N-(3-methylpentyl)aminocarbonyl,
N-methyl-N-(4-methylpentyl)aminocarbonyl,
N-methyl-N-(1,1-dimethylbutyl)aminocarbonyl,
N-methyl-N-(1,2-dimethylbutyl)aminocarbonyl,
N-methyl-N-(1,3-dimethylbutyl)aminocarbonyl,
N-methyl-N-(2,2-dimethylbutyl)aminocarbonyl,
N-methyl-N-(2,3-dimethylbutyl)aminocarbonyl,
N-methyl-N-(3,3-dimethylbutyl)aminocarbonyl,
N-methyl-N-(1-ethylbutyl)aminocarbonyl,
N-methyl-N-(2-ethylbutyl)aminocarbonyl,
N-methyl-N-(1,1,2-trimethylpropyl)aminocarbonyl,
N-methyl-N-(1,2,2-trimethylpropyl)aminocarbonyl,
N-methyl-N-(1-ethyl-1-methylpropyl)aminocarbonyl,
N-methyl-N-(1-ethyl-2-methylpropyl)aminocarbonyl,
N-ethyl-N-pentylaminocarbonyl,
N-ethyl-N-(1-methylbutyl)aminocarbonyl,
N-ethyl-N-(2-methylbutyl)aminocarbonyl,
N-ethyl-N-(3-methylbutyl)aminocarbonyl,
N-ethyl-N-(2,2-dimethylpropyl)aminocarbonyl,
N-ethyl-N-(1-ethylpropyl)aminocarbonyl,
N-ethyl-N-hexylaminocarbonyl,
N-ethyl-N-(1,1-dimethylpropyl)aminocarbonyl,
N-ethyl-N-(1,2-dimethylpropyl)aminocarbonyl,
N-ethyl-N-(1-methylpentyl)aminocarbonyl,
N-ethyl-N-(2-methylpentyl)aminocarbonyl,
N-ethyl-N-(3-methylpentyl)aminocarbonyl,
N-ethyl-N-(4-methylpentyl)aminocarbonyl,
N-ethyl-N-(1,1-dimethylbutyl)aminocarbonyl,
N-ethyl-N-(1,2-dimethylbutyl)aminocarbonyl,
N-ethyl-N-(1,3-dimethylbutyl)aminocarbonyl,
N-ethyl-N-(2,2-dimethylbutyl)aminocarbonyl,
N-ethyl-N-(2,3-dimethylbutyl)aminocarbonyl,
N-ethyl-N-(3,3-dimethylbutyl)aminocarbonyl,
N-ethyl-N-(1-ethylbutyl)aminocarbonyl,
N-ethyl-N-(2-ethylbutyl)aminocarbonyl,
N-ethyl-N-(1,1,2-trimethylpropyl)aminocarbonyl,
N-ethyl-N-(1,2,2-trimethylpropyl)aminocarbonyl,

N-ethyl-N-(1-ethyl-1-methylpropyl)aminocarbonyl, N-ethyl-N-(1-ethyl-2-methylpropyl)aminocarbonyl, N-propyl-N-pentylaminocarbonyl, N-butyl-N-pentylaminocarbonyl, N,N-dipentylaminocarbonyl, N-propyl-N-hexylaminocarbonyl, N-butyl-N-hexylaminocarbonyl, N-pentyl-N-hexylaminocarbonyl or N,N-dihexylaminocarbonyl;

- di(C_1-C_6-alkyl)aminothiocarbonyl: for example N,N-dimethylaminothiocarbonyl, N,N-diethylaminothiocarbonyl, N,N-di(1-methylethyl)aminothiocarbonyl, N,N-dipropylaminothiocarbonyl, N,N-dibutylaminothiocarbonyl, N,N-di(1-methylpropyl)aminothiocarbonyl, N,N-di(2-methylpropyl)aminothiocarbonyl, N,N-di(1,1-dimethylethyl)aminothiocarbonyl, N-ethyl-N-methylaminothiocarbonyl, N-methyl-N-propylaminothiocarbonyl, N-methyl-N-(1-methylethyl)aminothiocarbonyl, N-butyl-N-methylaminothiocarbonyl, N-methyl-N-(1-methylpropyl)aminothiocarbonyl, N-methyl-N-(2-methylpropyl)aminothiocarbonyl, N-(1,1-dimethylethyl)-N-methylaminothiocarbonyl, N-ethyl-N-propylaminothiocarbonyl, N-ethyl-N-(1-methylethyl)aminothiocarbonyl, N-butyl-N-ethylaminothiocarbonyl, N-ethyl-N-(1-methylpropyl)aminothiocarbonyl, N-ethyl-N-(2-methylpropyl)aminothiocarbonyl, N-ethyl-N-(1,1-dimethylethyl)aminothiocarbonyl, N-(1-methylethyl)-N-propylaminothiocarbonyl, N-butyl-N-propylaminothiocarbonyl, N-(1-methylpropyl)-N-propylaminothiocarbonyl, N-(2-methylpropyl)-N-propylaminothiocarbonyl, N-(1,1-dimethylethyl)-N-propylaminothiocarbonyl, N-butyl-N-(1-methylethyl)aminothiocarbonyl, N-(1-methylethyl)-N-(1-methylpropyl)aminothiocarbonyl, N-(1-methylethyl)-N-(2-methylpropyl)aminothiocarbonyl, N-(1,1-dimethylethyl)-N-(1-methylethyl)aminothiocarbonyl, N-butyl-N-(1-methylpropyl)aminothiocarbonyl, N-butyl-N-(2-methylpropyl)aminothiocarbonyl, N-butyl-N-(1,1-dimethylethyl)aminothiocarbonyl, N-(1-methylpropyl)-N-(2-methylpropyl)aminothiocarbonyl, N-(1,1-dimethylethyl)-N-(1-methylpropyl)aminothiocarbonyl, N-(1,1-dimethylethyl)-N-(2-methylpropyl)aminothiocarbonyl, N-methyl-N-pentylaminothiocarbonyl, N-methyl-N-(1-methylbutyl)aminothiocarbonyl, N-methyl-N-(2-methylbutyl)aminothiocarbonyl, N-methyl-N-(3-methylbutyl)aminothiocarbonyl, N-methyl-N-(2,2-dimethylpropyl)aminothiocarbonyl,

N-methyl-N-(1-ethylpropyl)aminothiocarbonyl,
N-methyl-N-hexylaminothiocarbonyl,
N-methyl-N-(1,1-dimethylpropyl)aminothiocarbonyl,
N-methyl-N-(1,2-dimethylpropyl)aminothiocarbonyl,
N-methyl-N-(1-methylpentyl)aminothiocarbonyl,
N-methyl-N-(2-methylpentyl)aminothiocarbonyl,
N-methyl-N-(3-methylpentyl)aminothiocarbonyl,
N-methyl-N-(4-methylpentyl)aminothiocarbonyl,
N-methyl-N-(1,1-dimethylbutyl)aminothiocarbonyl,
N-methyl-N-(1,2-dimethylbutyl)aminothiocarbonyl,
N-methyl-N-(1,3-dimethylbutyl)aminothiocarbonyl,
N-methyl-N-(2,2-dimethylbutyl)aminothiocarbonyl,
N-methyl-N-(2,3-dimethylbutyl)aminothiocarbonyl,
N-methyl-N-(3,3-dimethylbutyl)aminothiocarbonyl,
N-methyl-N-(1-ethylbutyl)aminothiocarbonyl,
N-methyl-N-(2-ethylbutyl)aminothiocarbonyl,
N-methyl-N-ethyl-N-(1,1,2-trimethylpropyl)aminothiocarbonyl,
N-methyl-N-(1,2,2-trimethylpropyl)aminothiocarbonyl,
N-methyl-N-(1-ethyl-1-methylpropyl)aminothiocarbonyl,
N-methyl-N-(1-ethyl-2-methylpropyl)aminothiocarbonyl,
N-ethyl-N-pentylaminothiocarbonyl,
N-ethyl-N-(1-methylbutyl)aminothiocarbonyl,
N-ethyl-N-(2-methylbutyl)aminothiocarbonyl,
N-ethyl-N-(3-methylbutyl)aminothiocarbonyl,
N-ethyl-N-(2,2-dimethylpropyl)aminothiocarbonyl,
N-ethyl-N-(1-ethylpropyl)aminothiocarbonyl,
N-ethyl-N-hexylaminothiocarbonyl,
N-ethyl-N-(1,1-dimethylpropyl)aminothiocarbonyl,
N-ethyl-N-(1,2-dimethylpropyl)aminothiocarbonyl,
N-ethyl-N-(1-methylpentyl)aminothiocarbonyl,
N-ethyl-N-(2-methylpentyl)aminothiocarbonyl,
N-ethyl-N-(3-methylpentyl)aminothiocarbonyl,
N-ethyl-N-(4-methylpentyl)aminothiocarbonyl,
N-ethyl-N-(1,1-dimethylbutyl)aminothiocarbonyl,
N-ethyl-N-(1,2-dimethylbutyl)aminothiocarbonyl,
N-ethyl-N-(1,3-dimethylbutyl)aminothiocarbonyl,
N-ethyl-N-(2,2-dimethylbutyl)aminothiocarbonyl,
N-ethyl-N-(2,3-dimethylbutyl)aminothiocarbonyl,
N-ethyl-N-(3,3-dimethylbutyl)aminothiocarbonyl,
N-ethyl-N-(1-ethylbutyl)aminothiocarbonyl,
N-ethyl-N-(2-ethylbutyl)aminothiocarbonyl,
N-ethyl-N-(1,1,2-trimethylpropyl)aminothiocarbonyl,
N-ethyl-N-(1,2,2-trimethylpropyl)aminothiocarbonyl,
N-ethyl-N-(1-ethyl-1-methylpropyl)aminothiocarbonyl,
N-ethyl-N-(1-ethyl-2-methylpropyl)aminothiocarbonyl,
N-propyl-N-pentylaminothiocarbonyl,
N-butyl-N-pentylaminothiocarbonyl,

N,N-dipentylaminothiocarbonyl, N-propyl-N-hexylaminothiocarbonyl, N-butyl-N-hexylaminothiocarbonyl, N-pentyl-N-hexylaminothiocarbonyl or N,N-dihexylaminothiocarbonyl;

- C_1-C_4-alkoxy-C_1-C_4-alkyl and the alkoxyalkyl moieties of hydroxy-C_1-C_4-alkoxy-C_1-C_4-alkyl: C_1-C_4-alkyl which is substituted by C_1-C_4-alkoxy as mentioned above, i.e., for example, methoxymethyl, ethoxymethyl, propoxymethyl, (1-methylethoxy)methyl, butoxymethyl, (1-methylpropoxy)methyl, (2-methylpropoxy)methyl, (1,1-dimethylethoxy)methyl, 2-(methoxy)ethyl, 2-(ethoxy)ethyl, 2-(propoxy)ethyl, 2-(1-methylethoxy)ethyl, 2-(butoxy)ethyl, 2-(1-methylpropoxy)ethyl, 2-(2-methylpropoxy)ethyl, 2-(1,1-dimethylethoxy)ethyl, 2-(methoxy)propyl, 2-(ethoxy)propyl, 2-(propoxy)propyl, 2-(1-methylethoxy)propyl, 2-(butoxy)propyl, 2-(1-methylpropoxy)propyl, 2-(2-methylpropoxy)propyl, 2-(1,1-dimethylethoxy)propyl, 3-(methoxy)propyl, 3-(ethoxy)propyl, 3-(propoxy)propyl, 3-(1-methylethoxy)propyl, 3-(butoxy)propyl, 3-(1-methylpropoxy)propyl, 3-(2-methylpropoxy)propyl, 3-(1,1-dimethylethoxy)propyl, 2-(methoxy)butyl, 2-(ethoxy)butyl, 2-(propoxy)butyl, 2-(1-methylethoxy)butyl, 2-(butoxy)butyl, 2-(1-methylpropoxy)butyl, 2-(2-methylpropoxy)butyl, 2-(1,1-dimethylethoxy)butyl, 3-(methoxy)butyl, 3-(ethoxy)butyl, 3-(propoxy)butyl, 3-(1-methylethoxy)butyl, 3-(butoxy)butyl, 3-(1-methylpropoxy)butyl, 3-(2-methylpropoxy)butyl, 3-(1,1-dimethylethoxy)butyl, 4-(methoxy)butyl, 4-(ethoxy)butyl, 4-(propoxy)butyl, 4-(1-methylethoxy)butyl, 4-(butoxy)butyl, 4-(1-methylpropoxy)butyl, 4-(2-methylpropoxy)butyl or 4-(1,1-dimethylethoxy)butyl;

- C_1-C_4-alkoxy-C_1-C_4-alkoxy as alkoxyalkoxy moieties of C_1-C_4-alkoxy-C_1-C_4-alkoxycarbonyl: C_1-C_4-alkoxy which is substituted by C_1-C_4-alkoxy as mentioned above, i.e., for example, methoxymethoxy, ethoxymethoxy, propoxymethoxy, (1-methylethoxy)methoxy, butoxymethoxy, (1-methylpropoxy)methoxy, (2-methylpropoxy)methoxy, (1,1-dimethylethoxy)methoxy, 2-(methoxy)ethoxy, 2-(ethoxy)ethoxy, 2-(propoxy)ethoxy, 2-(1-methylethoxy)ethoxy, 2-(butoxy)ethoxy, 2-(1-methylpropoxy)ethoxy, 2-(2-methylpropoxy)ethoxy, 2-(1,1-dimethylethoxy)ethoxy, 2-(methoxy)propoxy, 2-(ethoxy)propoxy, 2-(propoxy)propoxy,

2-(1-methylethoxy)propoxy, 2-(butoxy)propoxy, 2-(1-methylpropoxy)propoxy, 2-(2-methylpropoxy)propoxy, 2-(1,1-dimethylethoxy)propoxy, 3-(methoxy)propoxy, 3-(ethoxy)propoxy, 3-(propoxy)propoxy, 3-(1-methylethoxy)propoxy, 3-(butoxy)propoxy, 3-(1-methylpropoxy)propoxy, 3-(2-methylpropoxy)propoxy, 3-(1,1-dimethylethoxy)propoxy, 2-(methoxy)butoxy, 2-(ethoxy)butoxy, 2-(propoxy)butoxy, 2-(1-methylethoxy)butoxy, 2-(butoxy)butoxy, 2-(1-methylpropoxy)butoxy, 2-(2-methylpropoxy)butoxy, 2-(1,1-dimethylethoxy)butoxy, 3-(methoxy)butoxy, 3-(ethoxy)butoxy, 3-(propoxy)butoxy, 3-(1-methylethoxy)butoxy, 3-(butoxy)butoxy, 3-(1-methylpropoxy)butoxy, 3-(2-methylpropoxy)butoxy, 3-(1,1-dimethylethoxy)butoxy, 4-(methoxy)butoxy, 4-(ethoxy)butoxy, 4-(propoxy)butoxy, 4-(1-methylethoxy)butoxy, 4-(butoxy)butoxy, 4-(1-methylpropoxy)butoxy, 4-(2-methylpropoxy)butoxy or 4-(1,1-dimethylethoxy)butoxy;

- C_3-C_6-alkenyl, and the alkenyl moieties of C_3-C_6-alkenylcarbonyl, C_3-C_6-alkenyloxy, C_3-C_6-alkenyloxycarbonyl, C_3-C_6-alkenylaminocarbonyl, N-(C_3-C_6-alkenyl)-N-(C_1-C_6-alkyl)aminocarbonyl, N-(C_3-C_6-alkenyl)-N-(C_1-C_6-alkoxy)aminocarbonyl: for example prop-2-en-1-yl, but-1-en-4-yl, 1-methylprop-2-en-1-yl, 2-methylprop-2-en-1-yl, 2-buten-1-yl, 1-penten-3-yl, 1-penten-4-yl, 2-penten-4-yl, 1-methylbut-2-en-1-yl, 2-methylbut-2-en-1-yl, 3-methylbut-2-en-1-yl, 1-methylbut-3-en-1-yl, 2-methylbut-3-en-1-yl, 3-methylbut-3-en-1-yl, 1,1-dimethylprop-2-en-1-yl, 1,2-dimethylprop-2-en-1-yl, 1-ethylprop-2-en-1-yl, hex-3-en-1-yl, hex-4-en-1-yl, hex-5-en-1-yl, 1-methylpent-3-en-1-yl, 2-methylpent-3-en-1-yl, 3-methylpent-3-en-1-yl, 4-methylpent-3-en-1-yl, 1-methylpent-4-en-1-yl, 2-methylpent-4-en-1-yl, 3-methylpent-4-en-1-yl, 4-methylpent-4-en-1-yl, 1,1-dimethylbut-2-en-1-yl, 1,1-dimethylbut-3-en-1-yl, 1,2-dimethylbut-2-en-1-yl, 1,2-dimethylbut-3-en-1-yl, 1,3-dimethylbut-2-en-1-yl, 1,3-dimethylbut-3-en-1-yl, 2,2-dimethylbut-3-en-1-yl, 2,3-dimethylbut-2-en-1-yl, 2,3-dimethylbut-3-en-1-yl, 3,3-dimethylbut-2-en-1-yl, 1-ethylbut-2-en-1-yl, 1-ethylbut-3-en-1-yl, 2-ethylbut-2-en-1-yl, 2-ethylbut-3-en-1-yl, 1,1,2-trimethylprop-2-en-1-yl, 1-ethyl-1-methylprop-2-en-1-yl or 1-ethyl-2-methylprop-2-en-1-yl;

- C_2-C_6-alkenyl, and the alkenyl moieties of C_2-C_6-alkenylcarbonyl, phenyl-C_2-C_6-alkenylcarbonyl and heterocyclyl-C_2-C_6-alkenylcarbonyl: C_3-C_6-alkenyl as mentioned above, and also ethenyl;

- C_2-C_{20}-alkenyl as alkenyl moiety of C_2-C_{20}-alkenylcarbonyl: C_2-C_6-alkenyl as mentioned above, and also pentadecenyl or heptadecenyl;

- C_3-C_6-haloalkenyl: a C_3-C_6-alkenyl radical as mentioned above which is partially or fully substituted by fluorine, chlorine, bromine and/or iodine, i.e., for example, 2-chloroallyl, 3-chloroallyl, 2,3-dichloroallyl, 3,3-dichloroallyl, 2,3,3-trichloroallyl, 2,3-dichlorobut-2-enyl, 2-bromoallyl, 3-bromoallyl, 2,3-dibromoallyl, 3,3-dibromoallyl, 2,3,3-tribromoallyl or 2,3-dibromobut-2-enyl;

- C_3-C_6-alkynyl, and the alkynyl moieties of C_3-C_6-alkynylcarbonyl, C_3-C_6-alkynyloxy, C_3-C_6-alkynyloxycarbonyl, C_3-C_6-alkynylaminocarbonyl, N-(C_3-C_6-alkynyl)-N-(C_1-C_6-alkyl)aminocarbonyl, N-(C_3-C_6-alkynyl)-N-(C_1-C_6-alkoxyamino)carbonyl: for example propargyl, but-1-yn-3-yl, but-1-yn-4-yl, but-2-yn-1-yl, pent-1-yn-3-yl, pent-1-yn-4-yl, pent-1-yn-5-yl, pent-2-yn-1-yl, pent-2-yn-4-yl, pent-2-yn-5-yl, 3-methylbut-1-yn-3-yl, 3-methylbut-1-yn-4-yl, hex-1-yn-3-yl, hex-1-yn-4-yl, hex-1-yn-5-yl, hex-1-yn-6-yl, hex-2-yn-1-yl, hex-2-yn-4-yl, hex-2-yn-5-yl, hex-2-yn-6-yl, hex-3-yn-1-yl, hex-3-yn-2-yl, 3-methylpent-1-yn-3-yl, 3-methylpent-1-yn-4-yl, 3-methylpent-1-yn-5-yl, 4-methylpent-2-yn-4-yl or 4-methylpent-2-yn-5-yl;

- C_2-C_6-alkynyl, and the alkynyl moieties of C_2-C_6-alkynylcarbonyl: C_3-C_6-alkynyl as mentioned above, and also ethynyl;

- C_3-C_6-haloalkynyl: a C_3-C_6-alkynyl radical as mentioned above which is partially or fully substituted by fluorine, chlorine, bromine and/or iodine, i.e., for example, 1,1-difluoroprop-2-yn-1-yl, 3-iodoprop-2-yn-1-yl, 4-fluorobut-2-yn-1-yl, 4-chlorobut-2-yn-1-yl, 1,1-difluorobut-2-yn-1-yl, 4-iodobut-3-yn-1-yl, 5-fluoropent-3-yn-1-yl, 5-iodopent-4-yn-1-yl, 6-fluorohex-4-yn-1-yl or 6-iodohex-5-yn-1-yl;

- C_3-C_6-cycloalkyl, and the cycloalkyl moieties of C_3-C_6-cycloalkylcarbonyl: for example cyclopropyl, cyclobutyl, cyclopentyl or cyclohexyl;

- heterocyclyl, and the heterocyclyl moieties of heterocyclyloxy, heterocyclylcarbonyl, heterocyclyl-C_1-C_6-alkyl, heterocyclyloxycarbonyl, heterocyclyloxythiocarbonyl, heterocyclyl-C_2-C_6-alkenylcarbonyl, heterocyclylcarbonyl-C_1-C_6-alkyl, N-(C_1-C_6-alkyl)-N-(heterocyclyl)aminocarbonyl, heterocyclylaminocarbonyl: a saturated, partially saturated or unsaturated 5- or 6-membered heterocyclic ring which is attached via carbon and contains one to four identical or different heteroatoms selected from the following group: oxygen, sulfur and nitrogen, i.e., for example, 5-membered rings having, for example, one heteroatom, having two heteroatoms, having three heteroatoms or having four heteroatoms or, for example, 6-membered rings having, for example, one heteroatom, having two heteroatoms, having three heteroatoms or having four heteroatoms, i.e. 5-membered rings having one heteroatom, such as:

  tetrahydrofuran-2-yl, tetrahydrofuran-3-yl, tetrahydrothien-2-yl, tetrahydrothien-3-yl, tetrahydropyrrol-2-yl, tetrahydropyrrol-3-yl, 2,3-dihydrofuran-2-yl, 2,3-dihydrofuran-3-yl, 2,5-dihydrofuran-2-yl, 2,5-dihydrofuran-3-yl, 4,5-dihydrofuran-2-yl, 4,5-dihydrofuran-3-yl, 2,3-dihydrothien-2-yl, 2,3-dihydrothien-3-yl, 2,5-dihydrothien-2-yl, 2,5-dihydrothien-3-yl, 4,5-dihydrothien-2-yl, 4,5-dihydrothien-3-yl, 2,3-dihydro-1H-pyrrol-2-yl, 2,3-dihydro-1H-pyrrol-3-yl, 2,5-dihydro-1H-pyrrol-2-yl, 2,5-dihydro-1H-pyrrol-3-yl, 4,5-dihydro-1H-pyrrol-2-yl, 4,5-dihydro-1H-pyrrol-3-yl, 3,4-dihydro-2H-pyrrol-2-yl, 3,4-dihydro-2H-pyrrol-3-yl, 3,4-dihydro-5H-pyrrol-2-yl, 3,4-dihydro-5H-pyrrol-3-yl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, pyrrol-2-yl or pyrrol-3-yl;

  5-membered rings having two heteroatoms such as:

  tetrahydropyrazol-3-yl, tetrahydropyrazol-4-yl, tetrahydroisoxazol-3-yl, tetrahydroisoxazol-4-yl, tetrahydroisoxazol-5-yl, 1,2-oxathiolan-3-yl, 1,2-oxathiolan-4-yl, 1,2-oxathiolan-5-yl, tetrahydroisothiazol-3-yl, tetrahydroisothiazol-4-yl, tetrahydroisothiazol-5-yl, 1,2-dithiolan-3-yl,

1,2-dithiolan-4-yl, tetrahydroimidazol-2-yl, tetrahydroimidazol-4-yl, tetrahydrooxazol-2-yl, tetrahydrooxazol-4-yl, tetrahydrooxazol-5-yl, tetrahydrothiazol-2-yl, tetrahydrothiazol-4-yl, tetrahydrothiazol-5-yl, 1,3-dioxolan-2-yl, 1,3-dioxolan-4-yl, 1,3-oxathiolan-2-yl, 1,3-oxathiolan-4-yl, 1,3-oxathiolan-5-yl, 1,3-dithiolan-2-yl, 1,3-dithiolan-4-yl, 4,5-dihydro-1H-pyrazol-3-yl, 4,5-dihydro-1H-pyrazol-4-yl, 4,5-dihydro-1H-pyrazol-5-yl, 2,5-dihydro-1H-pyrazol-3-yl, 2,5-dihydro-1H-pyrazol-4-yl, 2,5-dihydro-1H-pyrazol-5-yl, 4,5-dihydroisoxazol-3-yl, 4,5-dihydroisoxazol-4-yl, 4,5-dihydroisoxazol-5-yl, 2,5-dihydroisoxazol-3-yl, 2,5-dihydroisoxazol-4-yl, 2,5-dihydroisoxazol-5-yl, 2,3-dihydroisoxazol-3-yl, 2,3-dihydroisoxazol-4-yl, 2,3-dihydroisoxazol-5-yl, 4,5-dihydroisothiazol-3-yl, 4,5-dihydroisothiazol-4-yl, 4,5-dihydroisothiazol-5-yl, 2,5-dihydroisothiazol-3-yl, 2,5-dihydroisothiazol-4-yl, 2,5-dihydroisothiazol-5-yl, 2,3-dihydroisothiazol-3-yl, 2,3-dihydroisothiazol-4-yl, 2,3-dihydroisothiazol-5-yl, Δ^3-1,2-dithiol-3-yl, Δ^3-1,2-dithiol-4-yl, Δ^3-1,2-dithiol-5-yl, 4,5-dihydro-1H-imidazol-2-yl, 4,5-dihydro-1H-imidazol-4-yl, 4,5-dihydro-1H-imidazol-5-yl, 2,5-dihydro-1H-imidazol-2-yl, 2,5-dihydro-1H-imidazol-4-yl, 2,5-dihydro-1H-imidazol-5-yl, 2,3-dihydro-1H-imidazol-2-yl, 2,3-dihydro-1H-imidazol-4-yl, 4,5-dihydrooxazol-2-yl, 4,5-dihydrooxazol-4-yl, 4,5-dihydrooxazol-5-yl, 2,5-dihydrooxazol-2-yl, 2,5-dihydrooxazol-4-yl, 2,5-dihydrooxazol-5-yl, 2,3-dihydrooxazol-2-yl, 2,3-dihydrooxazol-4-yl, 2,3-dihydrooxazol-5-yl, 4,5-dihydrothiazol-2-yl, 4,5-dihydrothiazol-4-yl, 4,5-dihydrothiazol-5-yl, 2,5-dihydrothiazol-2-yl, 2,5-dihydrothiazol-4-yl, 2,5-dihydrothiazol-5-yl, 2,3-dihydrothiazol-2-yl, 2,3-dihydrothiazol-4-yl, 2,3-dihydrothiazol-5-yl, 1,3-dioxol-2-yl, 1,3-dioxol-4-yl, 1,3-dithiol-2-yl, 1,3-dithiol-4-yl, 1,3-oxathiol-2-yl, 1,3-oxathiol-4-yl, 1,3-oxathiol-5-yl, pyrazol-3-yl, pyrazol-4-yl, isoxazol-3-yl, isoxazol-4-yl, isoxazol-5-yl, isothiazol-3-yl, isothiazol-4-yl, isothiazol-5-yl, imidazol-2-yl, imidazol-4-yl, oxazol-2-yl, oxazol-4-yl, oxazol-5-yl, thiazol-2-yl, thiazol-4-yl or thiazol-5-yl;

5-membered rings having three heteroatoms such as:

1,2,3-Δ^2-oxadiazolin-4-yl, 1,2,3-Δ^2-oxadiazolin-5-yl, 1,2,4-Δ^4-oxadiazolin-3-yl, 1,2,4-Δ^4-oxadiazolin-5-yl, 1,2,4-Δ^2-oxadiazolin-3-yl, 1,2,4-Δ^2-oxadiazolin-5-yl, 1,2,4-Δ^3-oxadiazolin-3-yl, 1,2,4-Δ^3-oxadiazolin-5-yl,

1,3,4-Δ^2-oxadiazolin-2-yl, 1,3,4-Δ^2-oxadiazolin-5-yl, 1,3,4-Δ^3-oxadiazolin-2-yl, 1,3,4-oxadiazolin-2-yl, 1,2,3-Δ^2-thiadiazolin-4-yl, 1,2,3-Δ^2-thiadiazolin-5-yl, 1,2,4-Δ^4-thiadiazolin-3-yl, 1,2,4-Δ^4-thiadiazolin-5-yl, 1,2,4-Δ^3-thiadiazolin-3-yl, 1,2,4-Δ^3-thiadiazolin-5-yl, 1,2,4-Δ^2-thiadiazolin-3-yl, 1,2,4-Δ^2-thiadiazolin-5-yl, 1,3,4-Δ^2-thiadiazolin-2-yl, 1,3,4-Δ^2-thiadiazolin-5-yl, 1,3,4-Δ^3-thiadiazolin-2-yl, 1,3,4-thiadiazolin-2-yl, 1,3,2-dioxathiolan-4-yl, 1,2,3-Δ^2-triazolin-4-yl, 1,2,3-Δ^2-triazolin-5-yl, 1,2,4-Δ^2-triazolin-3-yl, 1,2,4-Δ^2-triazolin-5-yl, 1,2,4-Δ^3-triazolin-3-yl, 1,2,4-Δ^3-triazolin-5-yl, 1,2,4-Δ^1-triazolin-2-yl, 1,2,4-triazolin-3-yl, 3H-1,2,4-dithiazol-5-yl, 2H-1,3,4-dithiazol-5-yl, 2H-1,3,4-oxathiazol-5-yl, 1,2,3-oxadiazol-4-yl, 1,2,3-oxadiazol-5-yl, 1,2,4-oxadiazol-3-yl, 1,2,4,-oxadiazol-5-yl, 1,3,4-oxadiazol-2-yl, 1,2,3-thiadiazol-4-yl, 1,2,3-thiadiazol-5-yl, 1,2,4-thiadiazol-3-yl, 1,2,4-thiadiazol-5-yl, 1,3,4-thiadiazolyl-2-yl, 1,2,3-triazol-4-yl or 1,2,4-triazol-3-yl;

5-membered rings having four heteroatoms such as:

tetrazol-5-yl;

6-membered rings having one heteroatom such as:

tetrahydropyran-2-yl, tetrahydropyran-3-yl, tetrahydropyran-4-yl, piperidin-2-yl, piperidin-3-yl, piperidin-4-yl, tetrahydrothiopyran-2-yl, tetrahydrothiopyran-3-yl, tetrahydrothiopyran-4-yl, 2H-3,4-dihydropyran-6-yl, 2H-3,4-dihydropyran-5-yl, 2H-3,4-dihydropyran-4-yl, 2H-3,4-dihydropyran-3-yl, 2H-3,4-dihydropyran-2-yl, 2H-3,4-dihydropyran-6-yl, 2H-3,4-dihydrothiopyran-5-yl, 2H-3,4-dihydrothiopyran-4-yl, 2H-3,4-dihydropyran-3-yl, 2H-3,4-dihydropyran-2-yl, 1,2,3,4-tetrahydropyridin-6-yl, 1,2,3,4-tetrahydropyridin-5-yl, 1,2,3,4-tetrahydropyridin-4-yl, 1,2,3,4-tetrahydropyridin-3-yl, 1,2,3,4-tetrahydropyridin-2-yl, 2H-5,6-dihydropyran-2-yl, 2H-5,6-dihydropyran-3-yl, 2H-5,6-dihydropyran-4-yl, 2H-5,6-dihydropyran-5-yl, 2H-5,6-dihydropyran-6-yl, 2H-5,6-dihydrothiopyran-2-yl, 2H-5,6-dihydrothiopyran-3-yl, 2H-5,6-dihydrothiopyran-4-yl, 2H-5,6-dihydrothiopyran-5-yl, 2H-5,6-dihydrothiopyran-6-yl, 1,2,5,6-tetrahydropyridin-2-yl, 1,2,5,6-tetrahydropyridin-3-yl,

1,2,5,6-tetrahydropyridin-4-yl, 1,2,5,6-tetrahydropyridin-5-yl, 1,2,5,6-tetrahydropyridin-6-yl, 2,3,4,5-tetrahydropyridin-2-yl, 2,3,4,5-tetrahydropyridin-3-yl, 2,3,4,5-tetrahydropyridin-4-yl, 2,3,4,5-tetrahydropyridin-5-yl, 2,3,4,5-tetrahydropyridin-6-yl, 4H-pyran-2-yl, 4H-pyran-3-yl, 4H-pyran-4-yl, 4H-thiopyran-2-yl, 4H-thiopyran-3-yl, 4H-thiopyran-4-yl, 1,4-dihydropyridin-2-yl, 1,4-dihydropyridin-3-yl, 1,4-dihydropyridin-4-yl, 2H-pyran-2-yl, 2H-pyran-3-yl, 2H-pyran-4-yl, 2H-pyran-5-yl, 2H-pyran-6-yl, 2H-thiopyran-2-yl, 2H-thiopyran-3-yl, 2H-thiopyran-4-yl, 2H-thiopyran-5-yl, 2H-thiopyran-6-yl, 1,2-dihydropyridin-2-yl, 1,2-dihydropyridin-3-yl, 1,2-dihydropyridin-4-yl, 1,2-dihydropyridin-5-yl, 1,2-dihydropyridin-6-yl, 3,4-dihydropyridin-2-yl, 3,4-dihydropyridin-3-yl, 3,4-dihydropyridin-4-yl, 3,4-dihydropyridin-5-yl, 3,4-dihydropyridin-6-yl, 2,5-dihydropyridin-2-yl, 2,5-dihydropyridin-3-yl, 2,5-dihydropyridin-4-yl, 2,5-dihydropyridin-5-yl, 2,5-dihydropyridin-6-yl, 2,3-dihydropyridin-2-yl, 2,3-dihydropyridin-3-yl, 2,3-dihydropyridin-4-yl, 2,3-dihydropyridin-5-yl, 2,3-dihydropyridin-6-yl, pyridin-2-yl, pyridin-3-yl or pyridin-4-yl;

6-membered rings having two heteroatoms such as:

1,3-dioxan-2-yl, 1,3-dioxan-4-yl, 1,3-dioxan-5-yl, 1,4-dioxan-2-yl, 1,3-dithian-2-yl, 1,3-dithian-4-yl, 1,3-dithian-5-yl, 1,4-dithian-2-yl, 1,3-oxathian-2-yl, 1,3-oxathian-4-yl, 1,3-oxathian-5-yl, 1,3-oxathian-6-yl, 1,4-oxathian-2-yl, 1,4-oxathian-3-yl, 1,2-dithian-3-yl, 1,2-dithian-4-yl, hexahydropyrimidin-2-yl, hexahydropyrimidin-4-yl, hexahydropyrimidin-5-yl, hexahydropyrazin-2-yl, hexahydropyridazin-3-yl, hexahydropyridazin-4-yl, tetrahydro-1,3-oxazin-2-yl, tetrahydro-1,3-oxazin-4-yl, tetrahydro-1,3-oxazin-5-yl, tetrahydro-1,3-oxazin-6-yl, tetrahydro-1,3-thiazin-2-yl, tetrahydro-1,3-thiazin-4-yl, tetrahydro-1,3-thiazin-5-yl, tetrahydro-1,3-thiazin-6-yl, tetrahydro-1,4-thiazin-2-yl, tetrahydro-1,4-thiazin-3-yl, tetrahydro-1,4-oxazin-2-yl, tetrahydro-1,4-oxazin-3-yl, tetrahydro-1,2-oxazin-3-yl, tetrahydro-1,2-oxazin-4-yl, tetrahydro-1,2-oxazin-5-yl, tetrahydro-1,2-oxazin-6-yl, 2H-5,6-dihydro-1,2-oxazin-3-yl, 2H-5,6-dihydro-1,2-oxazin-4-yl, 2H-5,6-dihydro-1,2-oxazin-5-yl,

2H-5,6-dihydro-1,2-oxazin-6-yl,
2H-5,6-dihydro-1,2-thiazin-3-yl,
2H-5,6-dihydro-1,2-thiazin-4-yl,
2H-5,6-dihydro-1,2-thiazin-5-yl,
2H-5,6-dihydro-1,2-thiazin-6-yl,
4H-5,6-dihydro-1,2-oxazin-3-yl,
4H-5,6-dihydro-1,2-oxazin-4-yl,
4H-5,6-dihydro-1,2-oxazin-5-yl,
4H-5,6-dihydro-1,2-oxazin-6-yl,
4H-5,6-dihydro-1,2-thiazin-3-yl,
4H-5,6-dihydro-1,2-thiazin-4-yl,
4H-5,6-dihydro-1,2-thiazin-5-yl,
4H-5,6-dihydro-1,2-thiazin-6-yl,
2H-3,6-dihydro-1,2-oxazin-3-yl,
2H-3,6-dihydro-1,2-oxazin-4-yl,
2H-3,6-dihydro-1,2-oxazin-5-yl,
2H-3,6-dihydro-1,2-oxazin-6-yl,
2H-3,6-dihydro-1,2-thiazin-3-yl,
2H-3,6-dihydro-1,2-thiazin-4-yl,
2H-3,6-dihydro-1,2-thiazin-5-yl,
2H-3,6-dihydro-1,2-thiazin-6-yl,
2H-3,4-dihydro-1,2-oxazin-3-yl,
2H-3,4-dihydro-1,2-oxazin-4-yl,
2H-3,4-dihydro-1,2-oxazin-5-yl,
2H-3,4-dihydro-1,2-oxazin-6-yl,
2H-3,4-dihydro-1,2-thiazin-3-yl,
2H-3,4-dihydro-1,2-thiazin-4-yl,
2H-3,4-dihydro-1,2-thiazin-5-yl,
2H-3,4-dihydro-1,2-thiazin-6-yl,
2,3,4,5-tetrahydropyridazin-3-yl,
2,3,4,5-tetrahydropyridazin-4-yl,
2,3,4,5-tetrahydropyridazin-5-yl,
2,3,4,5-tetrahydropyridazin-6-yl,
3,4,5,6-tetrahydropyridazin-3-yl,
3,4,5,6-tetrahydropyridazin-4-yl,
1,2,5,6-tetrahydropyridazin-3-yl,
1,2,5,6-tetrahydropyridazin-4-yl,
1,2,5,6-tetrahydropyridazin-5-yl,
1,2,5,6-tetrahydropyridazin-6-yl,
1,2,3,6-tetrahydropyridazin-3-yl,
1,2,3,6-tetrahydropyridazin-4-yl,
4H-5,6-dihydro-1,3-oxazin-2-yl,
4H-5,6-dihydro-1,3-oxazin-4-yl,
4H-5,6-dihydro-1,3-oxazin-5-yl,
4H-5,6-dihydro-1,3-oxazin-6-yl,
4H-5,6-dihydro-1,3-thiazin-2-yl,
4H-5,6-dihydro-1,3-thiazin-4-yl,

4H-5,6-dihydro-1,3-thiazin-5-yl, 4H-5,6-dihydro-1,3-thiazin-6-yl, 3,4,5,6-tetrahydropyrimidin-2-yl, 3,4,5,6-tetrahydropyrimidin-4-yl, 3,4,5,6-tetrahydropyrimidin-5-yl, 3,4,5,6-tetrahydropyrimidin-6-yl, 1,2,3,4-tetrahydropyrazin-2-yl, 1,2,3,4-tetrahydropyrazin-5-yl, 1,2,3,4-tetrahydropyrimidin-2-yl, 1,2,3,4-tetrahydropyrimidin-4-yl, 1,2,3,4-tetrahydropyrimidin-5-yl, 1,2,3,4-tetrahydropyrimidin-6-yl, 2,3-dihydro-1,4-thiazin-2-yl, 2,3-dihydro-1,4-thiazin-3-yl, 2,3-dihydro-1,4-thiazin-5-yl, 2,3-dihydro-1,4-thiazin-6-yl, 2H-1,2-oxazin-3-yl, 2H-1,2-oxazin-4-yl, 2H-1,2-oxazin-5-yl, 2H-1,2-oxazin-6-yl, 2H-1,2-thiazin-3-yl, 2H-1,2-thiazin-4-yl, 2H-1,2-thiazin-5-yl, 2H-1,2-thiazin-6-yl, 4H-1,2-oxazin-3-yl, 4H-1,2-oxazin-4-yl, 4H-1,2-oxazin-5-yl, 4H-1,2-oxazin-6-yl, 4H-1,2-thiazin-3-yl, 4H-1,2-thiazin-4-yl, 4H-1,2-thiazin-5-yl, 4H-1,2-thiazin-6-yl, 6H-1,2-oxazin-3-yl, 6H-1,2-oxazin-4-yl, 6H-1,2-oxazin-5-yl, 6H-1,2-oxazin-6-yl, 6H-1,2-thiazin-3-yl, 6H-1,2-thiazin-4-yl, 6H-1,2-thiazin-5-yl, 6H-1,2-thiazin-6-yl, 2H-1,3-oxazin-2-yl, 2H-1,3-oxazin-4-yl, 2H-1,3-oxazin-5-yl, 2H-1,3-oxazin-6-yl, 2H-1,3-thiazin-2-yl, 2H-1,3-thiazin-4-yl, 2H-1,3-thiazin-5-yl, 2H-1,3-thiazin-6-yl, 4H-1,3-oxazin-2-yl, 4H-1,3-oxazin-4-yl, 4H-1,3-oxazin-5-yl, 4H-1,3-oxazin-6-yl, 4H-1,3-thiazin-2-yl, 4H-1,3-thiazin-4-yl, 4H-1,3-thiazin-5-yl, 4H-1,3-thiazin-6-yl, 6H-1,3-oxazin-2-yl, 6H-1,3-oxazin-4-yl, 6H-1,3-oxazin-5-yl, 6H-1,3-oxazin-6-yl, 6H-1,3-thiazin-2-yl, 6H-1,3-oxazin-4-yl, 6H-1,3-oxazin-5-yl, 6H-1,3-thiazin-6-yl, 2H-1,4-oxazin-2-yl, 2H-1,4-oxazin-3-yl, 2H-1,4-oxazin-5-yl, 2H-1,4-oxazin-6-yl, 2H-1,4-thiazin-2-yl, 2H-1,4-thiazin-3-yl, 2H-1,4-thiazin-5-yl, 2H-1,4-thiazin-6-yl, 4H-1,4-oxazin-2-yl, 4H-1,4-oxazin-3-yl, 4H-1,4-thiazin-2-yl, 4H-1,4-thiazin-3-yl, 1,4-dihydropyridazin-3-yl, 1,4-dihydropyridazin-4-yl, 1,4-dihydropyridazin-5-yl, 1,4-dihydropyridazin-6-yl, 1,4-dihydropyrazin-2-yl, 1,2-dihydropyrazin-2-yl, 1,2-dihydropyrazin-3-yl, 1,2-dihydropyrazin-5-yl, 1,2-dihydropyrazin-6-yl, 1,4-dihydropyrimidin-2-yl, 1,4-dihydropyrimidin-4-yl, 1,4-dihydropyrimidin-5-yl, 1,4-dihydropyrimidin-6-yl, 3,4-dihydropyrimidin-2-yl, 3,4-dihydropyrimidin-4-yl, 3,4-dihydropyrimidin-5-yl or 3,4-dihydropyrimidin-6-yl, pyridazin-3-yl, pyridazin-4-yl,

pyrimidin-2-yl, pyrimidin-4-yl, pyrimidin-5-yl or pyrazin-2-yl;

6-membered rings having three heteroatoms such as:

1,3,5-triazin-2-yl, 1,2,4-triazin-3-yl, 1,2,4-triazin-5-yl, 1,2,4-triazin-6-yl;

6-membered rings having four heteroatoms such as:

1,2,4,5-tetrazin-3-yl;

where, if appropriate, the sulfur of the abovementioned heterocycles may be oxidized to S=O or $S(=O)_2$

and where a bicyclic ring system may be formed with a fused-on phenyl ring or with a C_3-C_6-carbocycle or with a further 5- to 6-membered heterocycle.

- N-bonded heterocyclyl: a saturated, partially saturated or unsaturated 5- or 6-membered heterocyclic ring which is attached via nitrogen and contains at least one nitrogen and, if appropriate, one to three identical or different heteroatoms selected from the following group: oxygen, sulfur and nitrogen, i.e., for example,

N-bonded 5-membered rings such as:

tetrahydropyrrol-1-yl, 2,3-dihydro-1H-pyrrol-1-yl, 2,5-dihydro-1H-pyrrol-1-yl, pyrrol-1-yl, tetrahydropyrazol-1-yl, tetrahydroisoxazol-2-yl, tetrahydroisothiazol-2-yl, tetrahydroimidazol-1-yl, tetrahydrooxazol-3-yl, tetrahydrothiazol-3-yl, 4,5-dihydro-1H-pyrazol-1-yl, 2,5-dihydro-1H-pyrazol-1-yl, 2,3-dihydro-1H-pyrazol-1-yl, 2,5-dihydroisoxazol-2-yl, 2,3-dihydroisoxazol-2-yl, 2,5-dihydroisothiazol-2-yl, 2,3-dihydroisoxazol-2-yl, 4,5-dihydro-1H-imidazol-1-yl, 2,5-dihydro-1H-imidazol-1-yl, 2,3-dihydro-1H-imidazol-1-yl, 2,3-dihydrooxazol-3-yl, 2,3-dihydrothiazol-3-yl, pyrazol-1-yl, imidazol-1-yl, 1,2,4-Δ^4-oxadiazolin-2-yl, 1,2,4-Δ^2-oxadiazolin-4-yl, 1,2,4-Δ^3-oxadiazolin-2-yl, 1,3,4-Δ^2-oxadiazolin-4-yl, 1,2,4-Δ^5-thiadiazolin-2-yl, 1,2,4-Δ^3-thiadiazolin-2-yl, 1,2,4-Δ^2-thiadiazolin-4-yl, 1,3,4-Δ^2-thiadiazolin-4-yl, 1,2,3-Δ^2-triazolin-1-yl, 1,2,4-Δ^2-triazolin-1-yl, 1,2,4-Δ^2-triazolin-4-yl,

1,2,4-Δ^3-triazolin-1-yl, 1,2,4-Δ^1-triazolin-4-yl, 1,2,3-triazol-1-yl, 1,2,4-triazol-1-yl, tetrazol-1-yl;

and also N-bonded 6-membered rings such as:

piperidin-1-yl, 1,2,3,4-tetrahydropyridin-1-yl, 1,2,5,6-tetrahydropyridin-1-yl, 1,4-dihydropyridin-1-yl, 1,2-dihydropyridin-1-yl, hexahydropyrimidin-1-yl, hexahydropyrazin-1-yl, hexahydropyridazin-1-yl, tetrahydro-1,3-oxazin-3-yl, tetrahydro-1,3-thiazin-3-yl, tetrahydro-1,4-thiazin-4-yl, tetrahydro-1,4-oxazin-4-yl, tetrahydro-1,2-oxazin-2-yl, 2H-5,6-dihydro-1,2-oxazin-2-yl, 2H-5,6-dihydro-1,2-thiazin-2-yl, 2H-3,6-dihydro-1,2-oxazin-2-yl, 2H-3,6-dihydro-1,2-thiazin-2-yl, 2H-3,4-dihydro-1,2-oxazin-2-yl, 2H-3,4-dihydro-1,2-thiazin-2-yl, 2,3,4,5-tetrahydropyridazin-2-yl, 1,2,5,6-tetrahydropyridazin-1-yl, 1,2,5,6-tetrahydropyridazin-2-yl, 1,2,3,6-tetrahydropyridazin-1-yl, 3,4,5,6-tetrahydropyrimidin-3-yl, 1,2,3,4-tetrahydropyrazin-1-yl, 1,2,3,4-tetrahydropyrimidin-1-yl, 1,2,3,4-tetrahydropyrimidin-3-yl, 2,3-dihydro-1,4-thiazin-4-yl, 2H-1,2-oxazin-2-yl, 2H-1,2-thiazin-2-yl, 4H-1,4-oxazin-4-yl, 4H-1,4-thiazin-4-yl, 1,4-dihydropyridazin-1-yl, 1,4-dihydropyrazin-1-yl, 1,2-dihydropyrazin-1-yl, 1,4-dihydropyrimidin-1-yl or 3,4-dihydropyrimidin-3-yl;

and also N-bonded cyclic imides such as:

phthalimide, tetrahydrophthalimide, succinimide, maleimide, glutarimide, 5-oxotriazolin-1-yl, 5-oxo-1,3,4-oxadiazolin-4-yl or 2,4-dioxo-(1H,3H)-pyrimidin-3-yl;

where a bicyclic ring system may be formed with a fused-on phenyl ring or with a C_3-C_6-carbocycle or a further 5- to 6-membered heterocycle.

All phenyl rings, heterocyclyl or N-heterocyclyl radicals and all phenyl components in phenoxy, phenyl-C_1-C_6-alkyl, phenylcarbonyl-C_1-C_6-alkyl, phenylcarbonyl, phenylalkenylcarbonyl, phenoxycarbonyl, phenyloxythiocarbonyl, phenylaminocarbonyl and N-(C_1-C_6-alkyl)-N-phenylaminocarbonyl or heterocyclyl components in heterocyclyloxy, heterocyclyl-C_1-C_6-alkyl,

heterocyclylcarbonyl-C_1-C_6-alkyl, heterocyclylcarbonyl, heterocyclyloxythiocarbonyl, heterocyclylalkenylcarbonyl, heterocyclyloxycarbonyl, heterocyclylaminocarbonyl and N-(C_1-C_6-alkyl)-N-heterocyclylaminocarbonyl are, unless stated otherwise, preferably unsubstituted, or they carry one to three halogen atoms and/or one nitro group, one cyano radical and/or one or two methyl, trifluoromethyl, methoxy or trifluoromethoxy substituents.

Furthermore, the expression "Y together with the two carbons to which it is attached forms a saturated, partially saturated or unsaturated heterocycle which contains one to three identical or different heteroatoms selected from the following group: oxygen, sulfur and nitrogen" denotes, for example, 5-membered rings having one heteroatom such as:

tetrahydrofurandiyl, tetrahydrothienediyl, tetrahydropyrrolediyl, dihydrofurandiyl, dihydrothienediyl, dihydropyrrolediyl, furandiyl, thienediyl or pyrrolediyl;

or 5-membered rings having two heteroatoms such as:

tetrahydropyrazolediyl, tetrahydroisoxazolediyl, 1,2-oxathiolanediyl, tetrahydroisothiazolediyl, 1,2-dithiolanediyl, tetrahydroimidazolediyl, tetrahydrooxazolediyl, tetrahydrothiazolediyl, 1,3-dioxolanediyl, 1,3-oxathiolanediyl, dihydropyrazolediyl, dihydroisoxazolediyl, dihydroisothiazolediyl, 1,2-dithiolediyl, dihydroimidazolediyl, dihydrooxazolediyl, dihydrothiazolediyl, dioxolediyl, oxathiolediyl, pyrazolediyl, isoxazolediyl, isothiazolediyl, imidazolediyl, oxazolediyl or thiazolediyl;

or 5-membered rings having three heteroatoms such as:

1,2,3-oxadiazolinediyl, 1,2,3-thiadiazolinediyl, 1,2,3-triazolinediyl, 1,2,3-oxadiazolediyl, 1,2,3-thiadiazolediyl or 1,2,3-triazolediyl;

or 6-membered rings having one heteroatom such as:

tetrahydropyrandiyl, piperidinediyl, tetrahydrothiopyrandiyl, dihydropyrandiyl, dihydrothiopyrandiyl, tetrahydropyridinediyl, pyrandiyl, thiopyrandiyl, dihydropyrinediyl or pyridinediyl;

or 6-membered rings having two heteroatoms such as:

1,3-dioxanediyl, 1,4-dioxanediyl, 1,3-dithianediyl, 1,4-dithianediyl, 1,3-oxathianediyl, 1,4-oxathianediyl, 1,2-dithianediyl, hexahydropyrimidinediyl, hexahydropyrazinediyl, hexahydropyridazinediyl, tetrahydro-1,3-oxazinediyl, tetrahydro-1,3-thiazinediyl, tetrahydro-1,4-oxazinediyl, tetrahydro-1,2-oxazinediyl, dihydro-1,2-oxazinediyl, dihydro-1,2-thiazinediyl, tetrahydropyridazinediyl, dihydro-1,3-oxazinediyl, dihydro-1,3-oxazinediyl, dihydro-1,3-thiazinediyl, tetrahydropyrimidinediyl, tetrahydropyrazinediyl, dihydro-1,4-thiazinediyl, dihydro-1,4-oxazinediyl, dihydro-1,4-dioxinediyl, dihydro-1,4-dithiinediyl, 1,2-oxazinediyl, 1,2-thiazinediyl, 1,3-oxazinediyl, 1,3-thiazinediyl, 1,4-oxazinediyl, 1,4-thiazinediyl, dihydropyridazinediyl, dihydropyrazinediyl, dihydropyrimidinediyl, pyridazinediyl, pyrimidinediyl or pyrazinediyl;

or 6-membered rings having 3 heteroatoms such as:

1,2,4-triazinediyl;

where, if appropriate, the sulfur of the abovementioned heterocycles may be oxidized to S=O or $S(=O)_2$;

and where the moiety is fused to the skeleton via two adjacent carbon atoms.

The compounds of the formula I according to the invention where R^9 = IIa are referred to as compounds of the formula Ia, and compounds of the formula I where R^9 = IIb are referred to as Ib.

Preference is given to the compounds of the formula I, where

R^{11} is hydrogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl, hydroxyl, C_1-C_6-alkoxy or C_1-C_6-haloalkoxy;

Preference is likewise given to the compounds of the formula Ia.

With respect to the use of the compounds of the formula I according to the invention as herbicides, the variables preferably have the following meanings, in each case alone or in combination:

X is oxygen, sulfur, S=O, $S(=O)_2$, CR^6R^7, NR^8 or a bond;

Y together with the two carbons to which it is attached forms a saturated, partially saturated or unsaturated 5- or 6-membered heterocycle which contains one or two identical or different heteroatoms selected from the following group: oxygen, sulfur or nitrogen;

R^1,R^2 are hydrogen or C_1-C_6-alkyl;

R^3 is halogen, C_1-C_6-alkyl or C_1-C_6-alkoxy;

R^4 is nitro, halogen, cyano, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkoxy, C_1-C_6-haloalkoxy, C_1-C_6-alkylthio, C_1-C_6-haloalkylthio, C_1-C_6-alkylsulfinyl, C_1-C_6-haloalkylsulfinyl, C_1-C_6-alkylsulfonyl, C_1-C_6-haloalkylsulfonyl, aminosulfonyl, N-(C_1-C_6-alkyl)aminosulfonyl, N,N-di(C_1-C_6-alkyl)aminosulfonyl, N-(C_1-C_6-alkylsulfonyl)amino, N-(C_1-C_6-haloalkylsulfonyl)amino, N-(C_1-C_6-alkyl)-N-(C_1-C_6-alkylsulfonyl)amino or N-(C_1-C_6-alkyl)-N-(C_1-C_6-haloalkylsulfonyl)amino; in particular nitro, halogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkoxy, C_1-C_6-haloalkoxy, C_1-C_6-alkylthio, C_1-C_6-haloalkylthio, C_1-C_6-alkylsulfonyl or C_1-C_6-haloalkylsulfonyl;

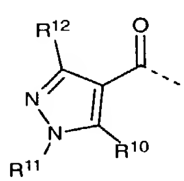
R^5 is hydrogen;

R^6,R^7 are hydrogen or C_1-C_6-alkyl;

R^8 is C_1-C_6-alkyl, C_1-C_6-alkylcarbonyl or C_1-C_6-alkylsulfonyl;

l is 0, 1 or 2;

R^9 is a radical IIa



IIa

where

R^{10} is hydroxyl, mercapto, halogen, OR^{13}, SR^{13}, SO_2R^{14} or N-bonded heterocyclyl, where the heterocyclyl radical may be partially or fully halogenated and/or may carry one to three of the following radicals: nitro, cyano, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkoxy or C_1-C_4-haloalkoxy;

R^{11} is hydrogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl or C_3-C_6-cycloalkyl;

R^{12} is hydrogen, C_1-C_6-alkyl or C_1-C_6-haloalkyl;

R^{13} is C_1-C_6-alkyl, C_3-C_6-alkenyl, C_3-C_6-haloalkenyl, C_3-C_6-alkynyl, C_1-C_6-alkylcarbonyl, C_2-C_6-alkenylcarbonyl, C_3-C_6-cycloalkylcarbonyl, C_1-C_6-alkoxycarbonyl, C_3-C_6-alkenyloxycarbonyl, C_3-C_6-alkynyloxycarbonyl, C_1-C_6-alkylthiocarbonyl, C_1-C_6-alkylaminocarbonyl, C_3-C_6-alkenylaminocarbonyl, C_3-C_6-alkynylaminocarbonyl, N,N-di(C_1-C_6-alkyl)aminocarbonyl, N-(C_3-C_6-alkenyl)-N-(C_1-C_6-alkyl)aminocarbonyl, N-(C_3-C_6-alkynyl)-N-(C_1-C_6-alkyl)aminocarbonyl, N-(C_1-C_6-alkoxy)-N-(C_1-C_6-alkyl)aminocarbonyl, N-(C_3-C_6-alkenyl)-N-(C_1-C_6-alkoxy)aminocarbonyl N-(C_3-C_6-alkynyl)-N-(C_1-C_6-alkoxy)aminocarbonyl, di(C_1-C_6-alkyl)aminothiocarbonyl, C_1-C_6-alkylcarbonyl-C_1-C_6-alkyl, C_1-C_6-alkoxyimino-C_1-C_6-alkyl, N-(C_1-C_6-alkylamino)imino-C_1-C_6-alkyl or N,N-di(C_1-C_6-alkylamino)imino-C_1-C_6-alkyl, where the abovementioned alkyl, cycloalkyl and alkoxy radicals may be partially or fully halogenated and/or may carry one to three of the following groups: cyano, C_1-C_4-alkoxy, C_1-C_4-alkylthio, C_1-C_4-alkylcarbonyl, C_1-C_4-alkoxycarbonyl, hydroxycarbonyl, di(C_1-C_4-alkyl)aminocarbonyl, C_1-C_4-alkylcarbonyloxy or C_3-C_6-cycloalkyl;

is phenyl, heterocyclyl, phenyl-C_1-C_6-alkyl, heterocyclyl-C_1-C_6-alkyl, phenylcarbonyl-C_1-C_6-alkyl, heterocyclylcarbonyl-C_1-C_6-alkyl, phenylcarbonyl, heterocyclylcarbonyl, phenoxycarbonyl, phenyloxythiocarbonyl, heterocyclyloxycarbonyl, heterocyclyloxythiocarbonyl, phenyl-C_2-C_6-alkenylcarbonyl or heterocyclyl-C_2-C_6-alkenylcarbonyl, where the phenyl and the heterocyclyl radical of the 14 lastmentioned

substituents may be partially or fully halogenated and/or may carry one to three of the following radicals: nitro, cyano, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkoxy, C_1-C_4-haloalkoxy, heterocyclyl or N-bonded heterocyclyl, where the two lastmentioned substituents for their part may be partially or fully halogenated and/or may carry one to three of the following radicals: nitro, cyano, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkoxy or C_1-C_4-haloalkoxy;

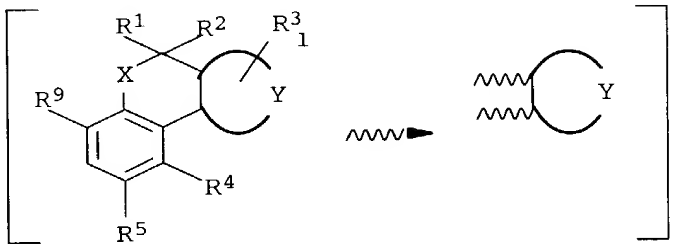
R^{14} is C_1-C_6-alkyl, C_3-C_6-alkenyl, C_3-C_6-haloalkenyl, C_3-C_6-cycloalkyl, C_1-C_6-alkoxy or di(C_1-C_6-haloalkyl)amino, where the abovementioned alkyl, cycloalkyl and alkoxy radicals may be partially or fully halogenated and/or may carry one to three of the following groups: cyano, C_1-C_4-alkoxy, C_1-C_4-alkylthio, C_1-C_4-alkylcarbonyl, C_1-C_4-alkoxycarbonyl, hydroxycarbonyl, di(C_1-C_4-alkyl)aminocarbonyl, C_1-C_4-alkylcarbonyloxy or C_3-C_6-cycloalkyl;

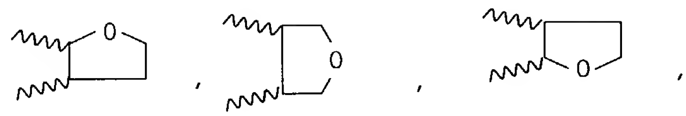
is phenyl, heterocyclyl, phenyl-C_1-C_6-alkyl, heterocyclyl-C_1-C_6-alkyl, phenoxy, heterocyclyloxy, where the phenyl and the heterocyclyl radical of the lastmentioned substituents may be partially or fully halogenated and/or may carry one to three of the following radicals: nitro, cyano, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkoxy or C_1-C_4-haloalkoxy.

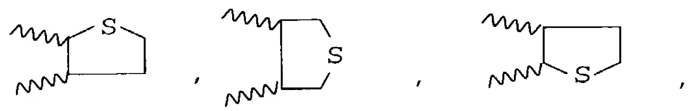
Particular preference is given to compounds of the formula I where the variables have the following meanings, either alone or in combination:

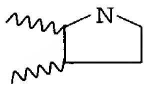
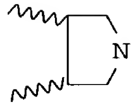
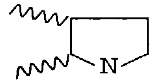
X is oxygen, sulfur, S=O, $S(=O)_2$, CR^6R^7 or a bond;

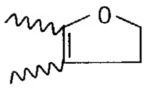
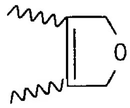
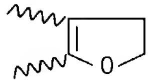
Y together with the two carbons to which it is attached forms the following heterocycles: (in the embodiments of the heterocycles below, the upper undulating line represents in each case the link to the hydrocarbon which carries the radicals R^1 and R^2, and the lower undulating line represents the link to the meta-carbon of the benzoyl moiety).

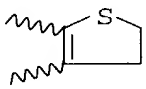
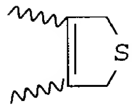
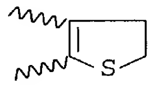


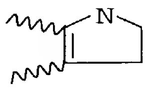
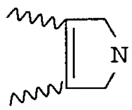
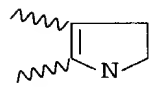
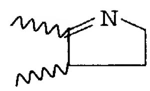
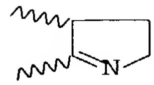


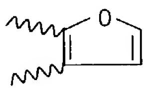
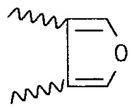
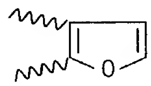


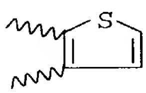
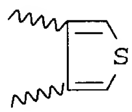
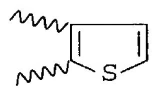
 ,  ,  ,

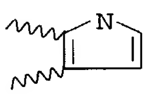
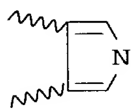
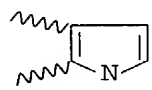
 ,  ,  ,

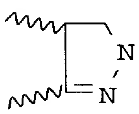
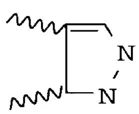
 ,  ,  ,

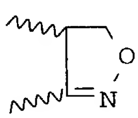
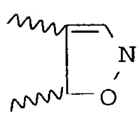
 ,  ,  ,  , 

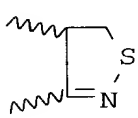
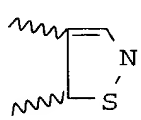
 ,  ,  ,

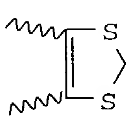
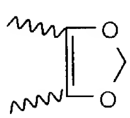
 ,  ,  ,

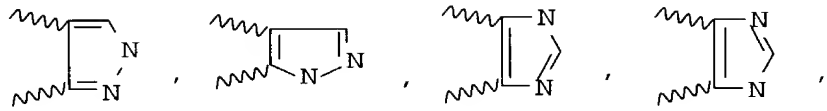
 ,  ,  ,

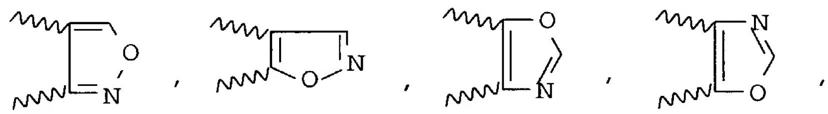
 ,  ,

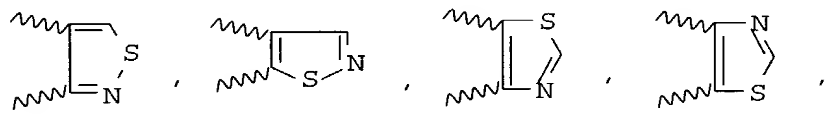
 ,  ,

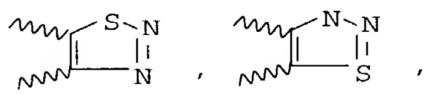
 ,  ,

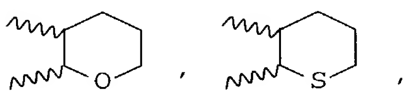
 ,  ,

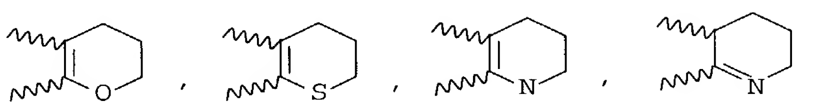


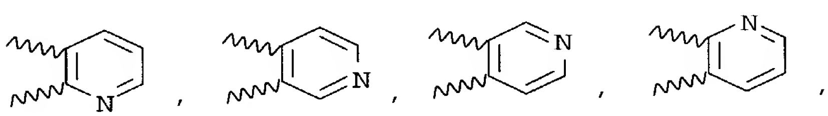


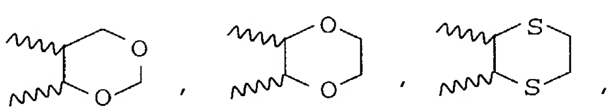


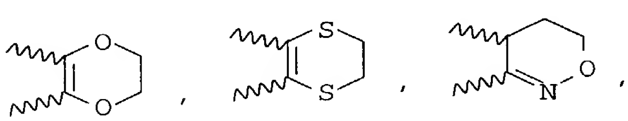


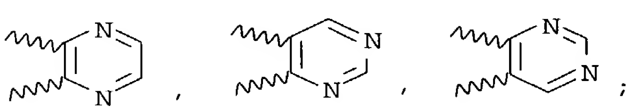






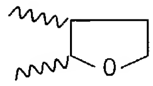
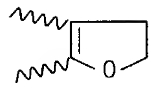
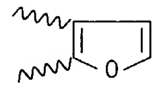


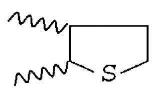
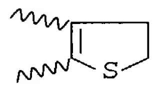
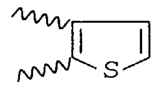


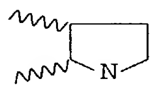
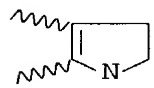
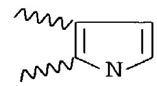


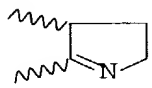
where the sulfur of the abovementioned heterocycles may be oxidized to S=O or $S(=O)_2$;

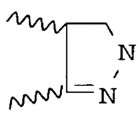
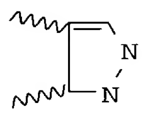
in particular, Y together with the two carbons to which it is attached forms the following heterocycles:

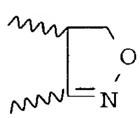
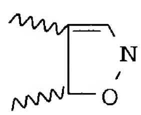
 ,  ,  ,

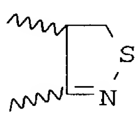
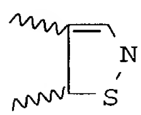
 ,  ,  ,

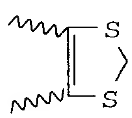
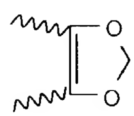
 ,  ,  ,

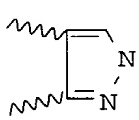
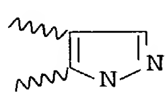
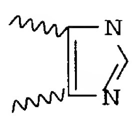
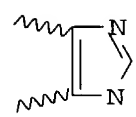
 ,

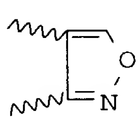
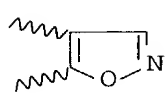
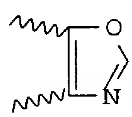
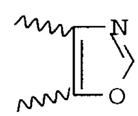
 ,  ,

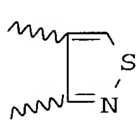
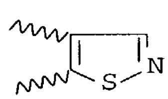
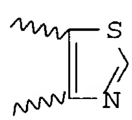
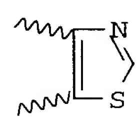
 ,  ,

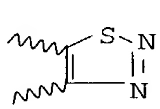
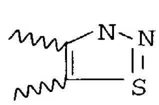
 ,  ,

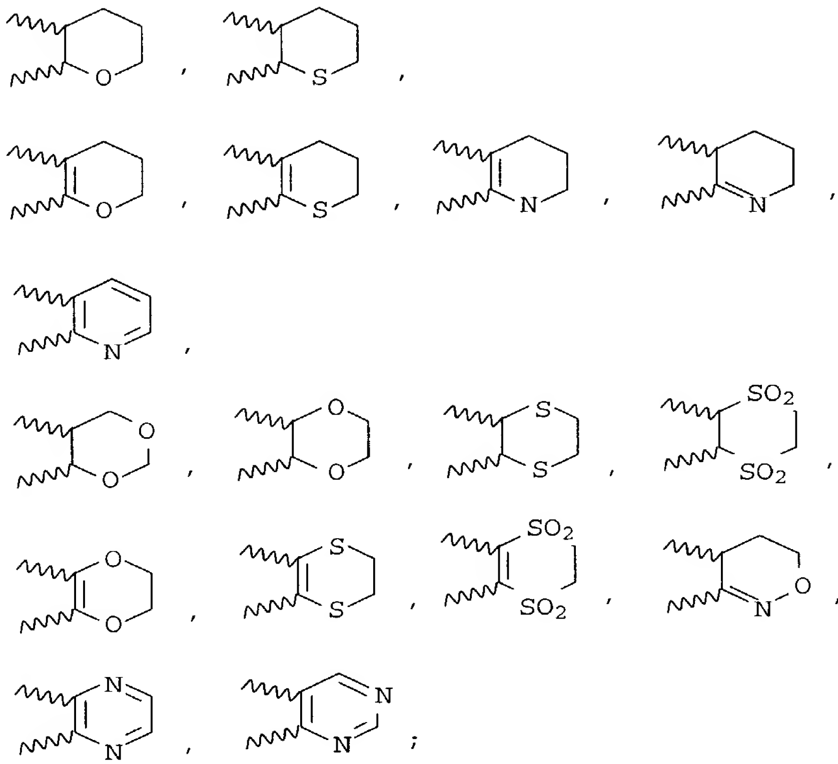
 ,  ,

 ,  ,  ,  ,

 ,  ,  ,  ,

 ,  ,  ,  ,

 ,  ,



R^1, R^2 are hydrogen;

R^3 is C_1-C_6-alkyl, such as methyl, ethyl or n-propyl; in particular methyl;

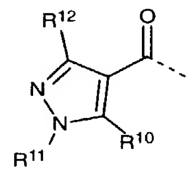
R^4 is nitro, halogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkoxy, C_1-C_6-alkylthio or C_1-C_6-alkylsulfonyl; in particular nitro, halogen, such as fluorine, chlorine or bromine, C_1-C_6-haloalkyl such as trifluoromethyl, C_1-C_6-alkylthio, such as methylthio or ethylthio, or C_1-C_6-alkylsulfonyl, such as methylsulfonyl or ethylsulfonyl; particularly preferably nitro, chlorine, trifluoromethyl, methylthio or methylsulfonyl;

R^5 is hydrogen;

R^6, R^7 are hydrogen or C_1-C_6-alkyl, such as methyl or ethyl; in particular hydrogen or methyl;

l is 0, 1 or 2; in particular 0 or 1;

R^9 is a radical IIa



IIa

where

R^{10} is hydroxyl;

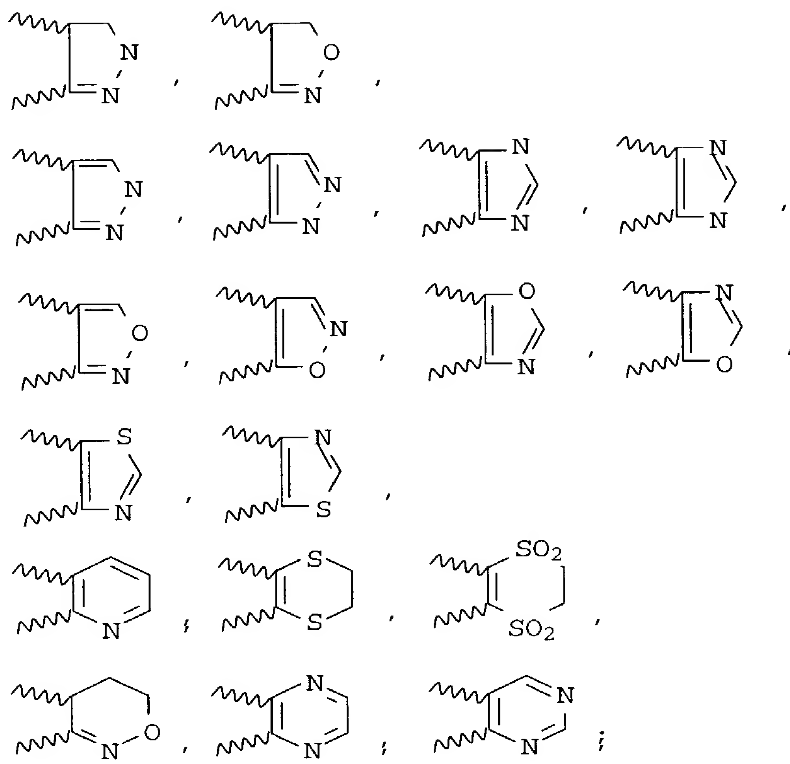
R^{11} is C_1-C_6-alkyl, such as methyl, ethyl, n-propyl, 1-methylethyl, n-butyl, 2-methylpropyl or 1,1-dimethylethyl or cyclopropyl;
in particular methyl or ethyl;
likewise particularly preferred cyclopropyl;

R^{12} is hydrogen or C_1-C_6-alkyl, such as methyl, ethyl, n-propyl or 1-methylethyl;
in particular hydrogen or methyl.

Very particular preference is given to the compounds Ia where

X is oxygen, sulfur, $S(=O)_2$, CH_2 or a bond;

Y together with the two carbons to which it is attached forms the following heterocycles:



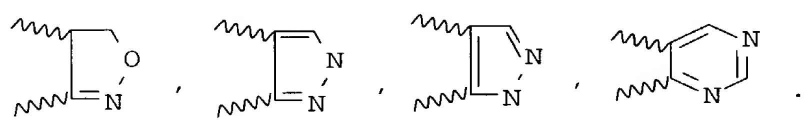
R^1, R^2	are hydrogen;
R^3	is C_1-C_4-alkyl;
R^4	is nitro, halogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkoxy, C_1-C_6-alkylthio or C_1-C_6-alkylsulfonyl;
R^5	is hydrogen or C_1-C_6-alkyl;
l	is 0, 1 or 2;
R^9	is a radical IIa;
R^{10}	is hydroxyl;
R^{11}	is hydrogen, C_1-C_6-alkyl or cyclopropyl; in particular C_1-C_6-alkyl;
R^{12}	is hydrogen, C_1-C_6-alkyl or C_1-C_6-haloalkyl.

Very particular preference is also given to the compounds Ia where X is oxygen, sulfur or a bond.

Very particular preference is also given to the compounds Ia where

Y together with the two carbons to which it is attached forms a heterocycle selected from the following group: dihydropyrazolediyl, dihydroisoxazolediyl, pyrazolediyl, isoxazolediyl or pyrimidinediyl.

Most preferably, Y together with the two carbons to which it is attached forms the following heterocycles:



Very particular preference is also given to the compounds of the formula I where

R^1, R^2 are hydrogen;

R^3 is C_1-C_6-alkyl;

R^4 is nitro, halogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkoxy, C_1-C_6-alkylthio or C_1-C_6-akylsulfonyl; in particular halogen, C_1-C_6-alkoxy, C_1-C_6-alkylthio or C_1-C_6-alkylsulfonyl;

R^5 is hydrogen;

l is 0 oder 1.

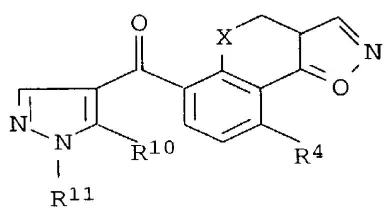
Very particular preference is also given to the compounds of the formula I where

R^{10} is hydroxyl or phenylcarbonyloxy which may be unsubstituted or partially or fully halogenated and/or may carry one to three of the following radicals: nitro, cyano, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkoxy or C_1-C_4-haloalkoxy; in particular hydroxyl;

R^{11} is C_1-C_6-alkyl or C_3-C_6-cycloalkyl; in particular C_1-C_6-alkyl or also in particular cyclopropyl;

R^{12} is hydrogen or C_1-C_6-alkyl; in particular hydrogen.

Very particular preference is also given to the compounds of the formula Ia1 (≡ Ia where R^1, R^2, R^5 and R^{12} = H, l = 0, meaning of the heterocycle according to structural formula), most particularly to compounds Ia1.n where the variables X, R^4, R^{10} and R^{11} are as defined in Table 1.
The radical definitions of R^1 to R^{12}, X, Y and l given above and the meaning of the fused heterocycle are of particular importance for the compounds according to the invention, not only in combination with one another, but also taken on their own. (For reasons of clarity, in the formulae Ia1, Ia2 ..., the meaning of the fused heterocycle is in each case as given in the corresponding structural formula.)



Ia1

Table 1:

n	X	R^4	R^{10}	R^{11}
1	bond	F	OH	CH_3
2	bond	Cl	OH	CH_3
3	bond	Br	OH	CH_3
4	bond	NO_2	OH	CH_3
5	bond	SCH_3	OH	CH_3
6	bond	SO_2CH_3	OH	CH_3
7	bond	$SO_2CH_2CH_3$	OH	CH_3
8	bond	CH_3	OH	CH_3
9	bond	CF_3	OH	CH_3
10	bond	$OCHF_2$	OH	CH_3
11	CH_2	F	OH	CH_3
12	CH_2	Cl	OH	CH_3
13	CH_2	Br	OH	CH_3
14	CH_2	NO_2	OH	CH_3
15	CH_2	SCH_3	OH	CH_3
16	CH_2	SO_2CH_3	OH	CH_3
17	CH_2	$SO_2CH_2CH_3$	OH	CH_3
18	CH_2	CH_3	OH	CH_3
19	CH_2	CF_3	OH	CH_3
20	CH_2	$OCHF_2$	OH	CH_3
21	O	F	OH	CH_3
22	O	Cl	OH	CH_3
23	O	Br	OH	CH_3
24	O	NO_2	OH	CH_3
25	O	SCH_3	OH	CH_3
26	O	SO_2CH_3	OH	CH_3
27	O	$SO_2CH_2CH_3$	OH	CH_3
28	O	CH_3	OH	CH_3
29	O	CF_3	OH	CH_3
30	O	$OCHF_2$	OH	CH_3
31	S	F	OH	CH_3
32	S	Cl	OH	CH_3
33	S	Br	OH	CH_3
34	S	NO_2	OH	CH_3
35	S	SCH_3	OH	CH_3
36	S	SO_2CH_3	OH	CH_3
37	S	$SO_2CH_2CH_3$	OH	CH_3

n	X	R^4	R^{10}	R^{11}
38	S	CH_3	OH	CH_3
39	S	CF_3	OH	CH_3
40	S	$OCHF_2$	OH	CH_3
41	SO_2	F	OH	CH_3
42	SO_2	Cl	OH	CH_3
43	SO_2	Br	OH	CH_3
44	SO_2	NO_2	OH	CH_3
45	SO_2	SCH_3	OH	CH_3
46	SO_2	SO_2CH_3	OH	CH_3
47	SO_2	$SO_2CH_2CH_3$	OH	CH_3
48	SO_2	CH_3	OH	CH_3
49	SO_2	CF_3	OH	CH_3
50	SO_2	$OCHF_2$	OH	CH_3
51	bond	F	OH	CH_2CH_3
52	bond	Cl	OH	CH_2CH_3
53	bond	Br	OH	CH_2CH_3
54	bond	NO_2	OH	CH_2CH_3
55	bond	SCH_3	OH	CH_2CH_3
56	bond	SO_2CH_3	OH	CH_2CH_3
57	bond	$SO_2CH_2CH_3$	OH	CH_2CH_3
58	bond	CH_3	OH	CH_2CH_3
59	bond	CF_3	OH	CH_2CH_3
60	bond	$OCHF_2$	OH	CH_2CH_3
61	CH_2	F	OH	CH_2CH_3
62	CH_2	Cl	OH	CH_2CH_3
63	CH_2	Br	OH	CH_2CH_3
64	CH_2	NO_2	OH	CH_2CH_3
65	CH_2	SCH_3	OH	CH_2CH_3
66	CH_2	SO_2CH_3	OH	CH_2CH_3
67	CH_2	$SO_2CH_2CH_3$	OH	CH_2CH_3
68	CH_2	CH_3	OH	CH_2CH_3
69	CH_2	CF_3	OH	CH_2CH_3
70	CH_2	$OCHF_2$	OH	CH_2CH_3
71	O	F	OH	CH_2CH_3
72	O	Cl	OH	CH_2CH_3
73	O	Br	OH	CH_2CH_3
74	O	NO_2	OH	CH_2CH_3
75	O	SCH_3	OH	CH_2CH_3
76	O	SO_2CH_3	OH	CH_2CH_3

n	X	R^4	R^{10}	R^{11}
77	O	$SO_2CH_2CH_3$	OH	CH_2CH_3
78	O	CH_3	OH	CH_2CH_3
79	O	CF_3	OH	CH_2CH_3
80	O	$OCHF_2$	OH	CH_2CH_3
81	S	F	OH	CH_2CH_3
82	S	Cl	OH	CH_2CH_3
83	S	Br	OH	CH_2CH_3
84	S	NO_2	OH	CH_2CH_3
85	S	SCH_3	OH	CH_2CH_3
86	S	SO_2CH_3	OH	CH_2CH_3
87	S	$SO_2CH_2CH_3$	OH	CH_2CH_3
88	S	CH_3	OH	CH_2CH_3
89	S	CF_3	OH	CH_2CH_3
90	S	$OCHF_2$	OH	CH_2CH_3
91	SO_2	F	OH	CH_2CH_3
92	SO_2	Cl	OH	CH_2CH_3
93	SO_2	Br	OH	CH_2CH_3
94	SO_2	NO_2	OH	CH_2CH_3
95	SO_2	SCH_3	OH	CH_2CH_3
96	SO_2	SO_2CH_3	OH	CH_2CH_3
97	SO_2	$SO_2CH_2CH_3$	OH	CH_2CH_3
98	SO_2	CH_3	OH	CH_2CH_3
99	SO_2	CF_3	OH	CH_2CH_3
100	SO_2	$OCHF_2$	OH	CH_2CH_3
101	bond	F	$OCOC_6H_5$	CH_3
102	bond	Cl	$OCOC_6H_5$	CH_3
103	bond	Br	$OCOC_6H_5$	CH_3
104	bond	NO_2	$OCOC_6H_5$	CH_3
105	bond	SCH_3	$OCOC_6H_5$	CH_3
106	bond	SO_2CH_3	$OCOC_6H_5$	CH_3
107	bond	$SO_2CH_2CH_3$	$OCOC_6H_5$	CH_3
108	bond	CH_3	$OCOC_6H_5$	CH_3
109	bond	CF_3	$OCOC_6H_5$	CH_3
110	bond	$OCHF_2$	$OCOC_6H_5$	CH_3
111	CH_2	F	$OCOC_6H_5$	CH_3
112	CH_2	Cl	$OCOC_6H_5$	CH_3
113	CH_2	Br	$OCOC_6H_5$	CH_3
114	CH_2	NO_2	$OCOC_6H_5$	CH_3
115	CH_2	SCH_3	$OCOC_6H_5$	CH_3

n	X	R^4	R^{10}	R^{11}
116	CH_2	SO_2CH_3	$OCOC_6H_5$	CH_3
117	CH_2	$SO_2CH_2CH_3$	$OCOC_6H_5$	CH_3
118	CH_2	CH_3	$OCOC_6H_5$	CH_3
119	CH_2	CF_3	$OCOC_6H_5$	CH_3
120	CH_2	$OCHF_2$	$OCOC_6H_5$	CH_3
121	O	F	$OCOC_6H_5$	CH_3
122	O	Cl	$OCOC_6H_5$	CH_3
123	O	Br	$OCOC_6H_5$	CH_3
124	O	NO_2	$OCOC_6H_5$	CH_3
125	O	SCH_3	$OCOC_6H_5$	CH_3
126	O	SO_2CH_3	$OCOC_6H_5$	CH_3
127	O	$SO_2CH_2CH_3$	$OCOC_6H_5$	CH_3
128	O	CH_3	$OCOC_6H_5$	CH_3
129	O	CF_3	$OCOC_6H_5$	CH_3
130	O	$OCHF_2$	$OCOC_6H_5$	CH_3
131	S	F	$OCOC_6H_5$	CH_3
132	S	Cl	$OCOC_6H_5$	CH_3
133	S	Br	$OCOC_6H_5$	CH_3
134	S	NO_2	$OCOC_6H_5$	CH_3
135	S	SCH_3	$OCOC_6H_5$	CH_3
136	S	SO_2CH_3	$OCOC_6H_5$	CH_3
137	S	$SO_2CH_2CH_3$	$OCOC_6H_5$	CH_3
138	S	CH_3	$OCOC_6H_5$	CH_3
139	S	CF_3	$OCOC_6H_5$	CH_3
140	S	$OCHF_2$	$OCOC_6H_5$	CH_3
141	SO_2	F	$OCOC_6H_5$	CH_3
142	SO_2	Cl	$OCOC_6H_5$	CH_3
143	SO_2	Br	$OCOC_6H_5$	CH_3
144	SO_2	NO_2	$OCOC_6H_5$	CH_3
145	SO_2	SCH_3	$OCOC_6H_5$	CH_3
146	SO_2	SO_2CH_3	$OCOC_6H_5$	CH_3
147	SO_2	$SO_2CH_2CH_3$	$OCOC_6H_5$	CH_3
148	SO_2	CH_3	$OCOC_6H_5$	CH_3
149	SO_2	CF_3	$OCOC_6H_5$	CH_3
150	SO_2	$OCHF_2$	$OCOC_6H_5$	CH_3
151	bond	F	$OCOC_6H_5$	CH_2CH_3
152	bond	Cl	$OCOC_6H_5$	CH_2CH_3
153	bond	Br	$OCOC_6H_5$	CH_2CH_3
154	bond	NO_2	$OCOC_6H_5$	CH_2CH_3

n	X	R^4	R^{10}	R^{11}
155	bond	SCH_3	$OCOC_6H_5$	CH_2CH_3
156	bond	SO_2CH_3	$OCOC_6H_5$	CH_2CH_3
157	bond	$SO_2CH_2CH_3$	$OCOC_6H_5$	CH_2CH_3
158	bond	CH_3	$OCOC_6H_5$	CH_2CH_3
159	bond	CF_3	$OCOC_6H_5$	CH_2CH_3
160	bond	$OCHF_2$	$OCOC_6H_5$	CH_2CH_3
161	CH_2	F	$OCOC_6H_5$	CH_2CH_3
162	CH_2	Cl	$OCOC_6H_5$	CH_2CH_3
163	CH_2	Br	$OCOC_6H_5$	CH_2CH_3
164	CH_2	NO_2	$OCOC_6H_5$	CH_2CH_3
165	CH_2	SCH_3	$OCOC_6H_5$	CH_2CH_3
166	CH_2	SO_2CH_3	$OCOC_6H_5$	CH_2CH_3
167	CH_2	$SO_2CH_2CH_3$	$OCOC_6H_5$	CH_2CH_3
168	CH_2	CH_3	$OCOC_6H_5$	CH_2CH_3
169	CH_2	CF_3	$OCOC_6H_5$	CH_2CH_3
170	CH_2	$OCHF_2$	$OCOC_6H_5$	CH_2CH_3
171	O	F	$OCOC_6H_5$	CH_2CH_3
172	O	Cl	$OCOC_6H_5$	CH_2CH_3
173	O	Br	$OCOC_6H_5$	CH_2CH_3
174	O	NO_2	$OCOC_6H_5$	CH_2CH_3
175	O	SCH_3	$OCOC_6H_5$	CH_2CH_3
176	O	SO_2CH_3	$OCOC_6H_5$	CH_2CH_3
177	O	$SO_2CH_2CH_3$	$OCOC_6H_5$	CH_2CH_3
178	O	CH_3	$OCOC_6H_5$	CH_2CH_3
179	O	CF_3	$OCOC_6H_5$	CH_2CH_3
180	O	$OCHF_2$	$OCOC_6H_5$	CH_2CH_3
181	S	F	$OCOC_6H_5$	CH_2CH_3
182	S	Cl	$OCOC_6H_5$	CH_2CH_3
183	S	Br	$OCOC_6H_5$	CH_2CH_3
184	S	NO_2	$OCOC_6H_5$	CH_2CH_3
185	S	SCH_3	$OCOC_6H_5$	CH_2CH_3
186	S	SO_2CH_3	$OCOC_6H_5$	CH_2CH_3
187	S	$SO_2CH_2CH_3$	$OCOC_6H_5$	CH_2CH_3
188	S	CH_3	$OCOC_6H_5$	CH_2CH_3
189	S	CF_3	$OCOC_6H_5$	CH_2CH_3
190	S	$OCHF_2$	$OCOC_6H_5$	CH_2CH_3
191	SO_2	F	$OCOC_6H_5$	CH_2CH_3
192	SO_2	Cl	$OCOC_6H_5$	CH_2CH_3
193	SO_2	Br	$OCOC_6H_5$	CH_2CH_3

n	X	R^4	R^{10}	R^{11}
194	SO_2	NO_2	$OCOC_6H_5$	CH_2CH_3
195	SO_2	SCH_3	$OCOC_6H_5$	CH_2CH_3
196	SO_2	SO_2CH_3	$OCOC_6H_5$	CH_2CH_3
197	SO_2	$SO_2CH_2CH_3$	$OCOC_6H_5$	CH_2CH_3
198	SO_2	CH_3	$OCOC_6H_5$	CH_2CH_3
199	SO_2	CF_3	$OCOC_6H_5$	CH_2CH_3
200	SO_2	$OCHF_2$	$OCOC_6H_5$	CH_2CH_3
201	bond	F	$OCOC(CH_3)_3$	CH_3
202	bond	Cl	$OCOC(CH_3)_3$	CH_3
203	bond	Br	$OCOC(CH_3)_3$	CH_3
204	bond	NO_2	$OCOC(CH_3)_3$	CH_3
205	bond	SCH_3	$OCOC(CH_3)_3$	CH_3
206	bond	SO_2CH_3	$OCOC(CH_3)_3$	CH_3
207	bond	$SO_2CH_2CH_3$	$OCOC(CH_3)_3$	CH_3
208	bond	CH_3	$OCOC(CH_3)_3$	CH_3
209	bond	CF_3	$OCOC(CH_3)_3$	CH_3
210	bond	$OCHF_2$	$OCOC(CH_3)_3$	CH_3
211	CH_2	F	$OCOC(CH_3)_3$	CH_3
212	CH_2	Cl	$OCOC(CH_3)_3$	CH_3
213	CH_2	Br	$OCOC(CH_3)_3$	CH_3
214	CH_2	NO_2	$OCOC(CH_3)_3$	CH_3
215	CH_2	SCH_3	$OCOC(CH_3)_3$	CH_3
216	CH_2	SO_2CH_3	$OCOC(CH_3)_3$	CH_3
217	CH_2	$SO_2CH_2CH_3$	$OCOC(CH_3)_3$	CH_3
218	CH_2	CH_3	$OCOC(CH_3)_3$	CH_3
219	CH_2	CF_3	$OCOC(CH_3)_3$	CH_3
220	CH_2	$OCHF_2$	$OCOC(CH_3)_3$	CH_3
221	O	F	$OCOC(CH_3)_3$	CH_3
222	O	Cl	$OCOC(CH_3)_3$	CH_3
223	O	Br	$OCOC(CH_3)_3$	CH_3
224	O	NO_2	$OCOC(CH_3)_3$	CH_3
225	O	SCH_3	$OCOC(CH_3)_3$	CH_3
226	O	SO_2CH_3	$OCOC(CH_3)_3$	CH_3
227	O	$SO_2CH_2CH_3$	$OCOC(CH_3)_3$	CH_3
228	O	CH_3	$OCOC(CH_3)_3$	CH_3
229	O	CF_3	$OCOC(CH_3)_3$	CH_3
230	O	$OCHF_2$	$OCOC(CH_3)_3$	CH_3
231	S	F	$OCOC(CH_3)_3$	CH_3
232	S	Cl	$OCOC(CH_3)_3$	CH_3

n	X	R^4	R^{10}	R^{11}
233	S	Br	$OCOC(CH_3)_3$	CH_3
234	S	NO_2	$OCOC(CH_3)_3$	CH_3
235	S	SCH_3	$OCOC(CH_3)_3$	CH_3
236	S	SO_2CH_3	$OCOC(CH_3)_3$	CH_3
237	S	$SO_2CH_2CH_3$	$OCOC(CH_3)_3$	CH_3
238	S	CH_3	$OCOC(CH_3)_3$	CH_3
239	S	CF_3	$OCOC(CH_3)_3$	CH_3
240	S	$OCHF_2$	$OCOC(CH_3)_3$	CH_3
241	SO_2	F	$OCOC(CH_3)_3$	CH_3
242	SO_2	Cl	$OCOC(CH_3)_3$	CH_3
243	SO_2	Br	$OCOC(CH_3)_3$	CH_3
244	SO_2	NO_2	$OCOC(CH_3)_3$	CH_3
245	SO_2	SCH_3	$OCOC(CH_3)_3$	CH_3
246	SO_2	SO_2CH_3	$OCOC(CH_3)_3$	CH_3
247	SO_2	$SO_2CH_2CH_3$	$OCOC(CH_3)_3$	CH_3
248	SO_2	CH_3	$OCOC(CH_3)_3$	CH_3
249	SO_2	CF_3	$OCOC(CH_3)_3$	CH_3
250	SO_2	$OCHF_2$	$OCOC(CH_3)_3$	CH_3
251	bond	F	$OCOC(CH_3)_3$	CH_2CH_3
252	bond	Cl	$OCOC(CH_3)_3$	CH_2CH_3
253	bond	Br	$OCOC(CH_3)_3$	CH_2CH_3
254	bond	NO_2	$OCOC(CH_3)_3$	CH_2CH_3
255	bond	SCH_3	$OCOC(CH_3)_3$	CH_2CH_3
256	bond	SO_2CH_3	$OCOC(CH_3)_3$	CH_2CH_3
257	bond	$SO_2CH_2CH_3$	$OCOC(CH_3)_3$	CH_2CH_3
258	bond	CH_3	$OCOC(CH_3)_3$	CH_2CH_3
259	bond	CF_3	$OCOC(CH_3)_3$	CH_2CH_3
260	bond	$OCHF_2$	$OCOC(CH_3)_3$	CH_2CH_3
261	CH_2	F	$OCOC(CH_3)_3$	CH_2CH_3
262	CH_2	Cl	$OCOC(CH_3)_3$	CH_2CH_3
263	CH_2	Br	$OCOC(CH_3)_3$	CH_2CH_3
264	CH_2	NO_2	$OCOC(CH_3)_3$	CH_2CH_3
265	CH_2	SCH_3	$OCOC(CH_3)_3$	CH_2CH_3
266	CH_2	SO_2CH_3	$OCOC(CH_3)_3$	CH_2CH_3
267	CH_2	$SO_2CH_2CH_3$	$OCOC(CH_3)_3$	CH_2CH_3
268	CH_2	CH_3	$OCOC(CH_3)_3$	CH_2CH_3
269	CH_2	CF_3	$OCOC(CH_3)_3$	CH_2CH_3
270	CH_2	$OCHF_2$	$OCOC(CH_3)_3$	CH_2CH_3
271	O	F	$OCOC(CH_3)_3$	CH_2CH_3

n	X	R^4	R^{10}	R^{11}
272	O	Cl	$OCOC(CH_3)_3$	CH_2CH_3
273	O	Br	$OCOC(CH_3)_3$	CH_2CH_3
274	O	NO_2	$OCOC(CH_3)_3$	CH_2CH_3
275	O	SCH_3	$OCOC(CH_3)_3$	CH_2CH_3
276	O	SO_2CH_3	$OCOC(CH_3)_3$	CH_2CH_3
277	O	$SO_2CH_2CH_3$	$OCOC(CH_3)_3$	CH_2CH_3
278	O	CH_3	$OCOC(CH_3)_3$	CH_2CH_3
279	O	CF_3	$OCOC(CH_3)_3$	CH_2CH_3
280	O	$OCHF_2$	$OCOC(CH_3)_3$	CH_2CH_3
281	S	F	$OCOC(CH_3)_3$	CH_2CH_3
282	S	Cl	$OCOC(CH_3)_3$	CH_2CH_3
283	S	Br	$OCOC(CH_3)_3$	CH_2CH_3
284	S	NO_2	$OCOC(CH_3)_3$	CH_2CH_3
285	S	SCH_3	$OCOC(CH_3)_3$	CH_2CH_3
286	S	SO_2CH_3	$OCOC(CH_3)_3$	CH_2CH_3
287	S	$SO_2CH_2CH_3$	$OCOC(CH_3)_3$	CH_2CH_3
288	S	CH_3	$OCOC(CH_3)_3$	CH_2CH_3
289	S	CF_3	$OCOC(CH_3)_3$	CH_2CH_3
290	S	$OCHF_2$	$OCOC(CH_3)_3$	CH_2CH_3
291	SO_2	F	$OCOC(CH_3)_3$	CH_2CH_3
292	SO_2	Cl	$OCOC(CH_3)_3$	CH_2CH_3
293	SO_2	Br	$OCOC(CH_3)_3$	CH_2CH_3
294	SO_2	NO_2	$OCOC(CH_3)_3$	CH_2CH_3
295	SO_2	SCH_3	$OCOC(CH_3)_3$	CH_2CH_3
296	SO_2	SO_2CH_3	$OCOC(CH_3)_3$	CH_2CH_3
297	SO_2	$SO_2CH_2CH_3$	$OCOC(CH_3)_3$	CH_2CH_3
298	SO_2	CH_3	$OCOC(CH_3)_3$	CH_2CH_3
299	SO_2	CF_3	$OCOC(CH_3)_3$	CH_2CH_3
300	SO_2	$OCHF_2$	$OCOC(CH_3)_3$	CH_2CH_3
301	bond	F	$OCOSCH_3$	CH_3
302	bond	Cl	$OCOSCH_3$	CH_3
303	bond	Br	$OCOSCH_3$	CH_3
304	bond	NO_2	$OCOSCH_3$	CH_3
305	bond	SCH_3	$OCOSCH_3$	CH_3
306	bond	SO_2CH_3	$OCOSCH_3$	CH_3
307	bond	$SO_2CH_2CH_3$	$OCOSCH_3$	CH_3
308	bond	CH_3	$OCOSCH_3$	CH_3
309	bond	CF_3	$OCOSCH_3$	CH_3
310	bond	$OCHF_2$	$OCOSCH_3$	CH_3

n	X	R^4	R^{10}	R^{11}
311	CH_2	F	$OCOSCH_3$	CH_3
312	CH_2	Cl	$OCOSCH_3$	CH_3
313	CH_2	Br	$OCOSCH_3$	CH_3
314	CH_2	NO_2	$OCOSCH_3$	CH_3
315	CH_2	SCH_3	$OCOSCH_3$	CH_3
316	CH_2	SO_2CH_3	$OCOSCH_3$	CH_3
317	CH_2	$SO_2CH_2CH_3$	$OCOSCH_3$	CH_3
318	CH_2	CH_3	$OCOSCH_3$	CH_3
319	CH_2	CF_3	$OCOSCH_3$	CH_3
320	CH_2	$OCHF_2$	$OCOSCH_3$	CH_3
321	O	F	$OCOSCH_3$	CH_3
322	O	Cl	$OCOSCH_3$	CH_3
323	O	Br	$OCOSCH_3$	CH_3
324	O	NO_2	$OCOSCH_3$	CH_3
325	O	SCH_3	$OCOSCH_3$	CH_3
326	O	SO_2CH_3	$OCOSCH_3$	CH_3
327	O	$SO_2CH_2CH_3$	$OCOSCH_3$	CH_3
328	O	CH_3	$OCOSCH_3$	CH_3
329	O	CF_3	$OCOSCH_3$	CH_3
330	O	$OCHF_2$	$OCOSCH_3$	CH_3
331	S	F	$OCOSCH_3$	CH_3
332	S	Cl	$OCOSCH_3$	CH_3
333	S	Br	$OCOSCH_3$	CH_3
334	S	NO_2	$OCOSCH_3$	CH_3
335	S	SCH_3	$OCOSCH_3$	CH_3
336	S	SO_2CH_3	$OCOSCH_3$	CH_3
337	S	$SO_2CH_2CH_3$	$OCOSCH_3$	CH_3
338	S	CH_3	$OCOSCH_3$	CH_3
339	S	CF_3	$OCOSCH_3$	CH_3
340	S	$OCHF_2$	$OCOSCH_3$	CH_3
341	SO_2	F	$OCOSCH_3$	CH_3
342	SO_2	Cl	$OCOSCH_3$	CH_3
343	SO_2	Br	$OCOSCH_3$	CH_3
344	SO_2	NO_2	$OCOSCH_3$	CH_3
345	SO_2	SCH_3	$OCOSCH_3$	CH_3
346	SO_2	SO_2CH_3	$OCOSCH_3$	CH_3
347	SO_2	$SO_2CH_2CH_3$	$OCOSCH_3$	CH_3
348	SO_2	CH_3	$OCOSCH_3$	CH_3
349	SO_2	CF_3	$OCOSCH_3$	CH_3

n	X	R^4	R^{10}	R^{11}
350	SO_2	$OCHF_2$	$OCOSCH_3$	CH_3
351	bond	F	$OCOSCH_3$	CH_2CH_3
352	bond	Cl	$OCOSCH_3$	CH_2CH_3
353	bond	Br	$OCOSCH_3$	CH_2CH_3
354	bond	NO_2	$OCOSCH_3$	CH_2CH_3
355	bond	SCH_3	$OCOSCH_3$	CH_2CH_3
356	bond	SO_2CH_3	$OCOSCH_3$	CH_2CH_3
357	bond	$SO_2CH_2CH_3$	$OCOSCH_3$	CH_2CH_3
358	bond	CH_3	$OCOSCH_3$	CH_2CH_3
359	bond	CF_3	$OCOSCH_3$	CH_2CH_3
360	bond	$OCHF_2$	$OCOSCH_3$	CH_2CH_3
361	CH_2	F	$OCOSCH_3$	CH_2CH_3
362	CH_2	Cl	$OCOSCH_3$	CH_2CH_3
363	CH_2	Br	$OCOSCH_3$	CH_2CH_3
364	CH_2	NO_2	$OCOSCH_3$	CH_2CH_3
365	CH_2	SCH_3	$OCOSCH_3$	CH_2CH_3
366	CH_2	SO_2CH_3	$OCOSCH_3$	CH_2CH_3
367	CH_2	$SO_2CH_2CH_3$	$OCOSCH_3$	CH_2CH_3
368	CH_2	CH_3	$OCOSCH_3$	CH_2CH_3
369	CH_2	CF_3	$OCOSCH_3$	CH_2CH_3
370	CH_2	$OCHF_2$	$OCOSCH_3$	CH_2CH_3
371	O	F	$OCOSCH_3$	CH_2CH_3
372	O	Cl	$OCOSCH_3$	CH_2CH_3
373	O	Br	$OCOSCH_3$	CH_2CH_3
374	O	NO_2	$OCOSCH_3$	CH_2CH_3
375	O	SCH_3	$OCOSCH_3$	CH_2CH_3
376	O	SO_2CH_3	$OCOSCH_3$	CH_2CH_3
377	O	$SO_2CH_2CH_3$	$OCOSCH_3$	CH_2CH_3
378	O	CH_3	$OCOSCH_3$	CH_2CH_3
379	O	CF_3	$OCOSCH_3$	CH_2CH_3
380	O	$OCHF_2$	$OCOSCH_3$	CH_2CH_3
381	S	F	$OCOSCH_3$	CH_2CH_3
382	S	Cl	$OCOSCH_3$	CH_2CH_3
383	S	Br	$OCOSCH_3$	CH_2CH_3
384	S	NO_2	$OCOSCH_3$	CH_2CH_3
385	S	SCH_3	$OCOSCH_3$	CH_2CH_3
386	S	SO_2CH_3	$OCOSCH_3$	CH_2CH_3
387	S	$SO_2CH_2CH_3$	$OCOSCH_3$	CH_2CH_3
388	S	CH_3	$OCOSCH_3$	CH_2CH_3

n	X	R^4	R^{10}	R^{11}
389	S	CF_3	$OCOSCH_3$	CH_2CH_3
390	S	$OCHF_2$	$OCOSCH_3$	CH_2CH_3
391	SO_2	F	$OCOSCH_3$	CH_2CH_3
392	SO_2	Cl	$OCOSCH_3$	CH_2CH_3
393	SO_2	Br	$OCOSCH_3$	CH_2CH_3
394	SO_2	NO_2	$OCOSCH_3$	CH_2CH_3
395	SO_2	SCH_3	$OCOSCH_3$	CH_2CH_3
396	SO_2	SO_2CH_3	$OCOSCH_3$	CH_2CH_3
397	SO_2	$SO_2CH_2CH_3$	$OCOSCH_3$	CH_2CH_3
398	SO_2	CH_3	$OCOSCH_3$	CH_2CH_3
399	SO_2	CF_3	$OCOSCH_3$	CH_2CH_3
400	SO_2	$OCHF_2$	$OCOSCH_3$	CH_2CH_3
401	bond	F	OCH_3	CH_3
402	bond	Cl	OCH_3	CH_3
403	bond	Br	OCH_3	CH_3
404	bond	NO_2	OCH_3	CH_3
405	bond	SCH_3	OCH_3	CH_3
406	bond	SO_2CH_3	OCH_3	CH_3
407	bond	$SO_2CH_2CH_3$	OCH_3	CH_3
408	bond	CH_3	OCH_3	CH_3
409	bond	CF_3	OCH_3	CH_3
410	bond	$OCHF_2$	OCH_3	CH_3
411	CH_2	F	OCH_3	CH_3
412	CH_2	Cl	OCH_3	CH_3
413	CH_2	Br	OCH_3	CH_3
414	CH_2	NO_2	OCH_3	CH_3
415	CH_2	SCH_3	OCH_3	CH_3
416	CH_2	SO_2CH_3	OCH_3	CH_3
417	CH_2	$SO_2CH_2CH_3$	OCH_3	CH_3
418	CH_2	CH_3	OCH_3	CH_3
419	CH_2	CF_3	OCH_3	CH_3
420	CH_2	$OCHF_2$	OCH_3	CH_3
421	O	F	OCH_3	CH_3
422	O	Cl	OCH_3	CH_3
423	O	Br	OCH_3	CH_3
424	O	NO_2	OCH_3	CH_3
425	O	SCH_3	OCH_3	CH_3
426	O	SO_2CH_3	OCH_3	CH_3
427	O	$SO_2CH_2CH_3$	OCH_3	CH_3

n	X	R^4	R^{10}	R^{11}
428	O	CH_3	OCH_3	CH_3
429	O	CF_3	OCH_3	CH_3
430	O	$OCHF_2$	OCH_3	CH_3
431	S	F	OCH_3	CH_3
432	S	Cl	OCH_3	CH_3
433	S	Br	OCH_3	CH_3
434	S	NO_2	OCH_3	CH_3
435	S	SCH_3	OCH_3	CH_3
436	S	SO_2CH_3	OCH_3	CH_3
437	S	$SO_2CH_2CH_3$	OCH_3	CH_3
438	S	CH_3	OCH_3	CH_3
439	S	CF_3	OCH_3	CH_3
440	S	$OCHF_2$	OCH_3	CH_3
441	SO_2	F	OCH_3	CH_3
442	SO_2	Cl	OCH_3	CH_3
443	SO_2	Br	OCH_3	CH_3
444	SO_2	NO_2	OCH_3	CH_3
445	SO_2	SCH_3	OCH_3	CH_3
446	SO_2	SO_2CH_3	OCH_3	CH_3
447	SO_2	$SO_2CH_2CH_3$	OCH_3	CH_3
448	SO_2	CH_3	OCH_3	CH_3
449	SO_2	CF_3	OCH_3	CH_3
450	SO_2	$OCHF_2$	OCH_3	CH_3
451	bond	F	OCH_3	CH_2CH_3
452	bond	Cl	OCH_3	CH_2CH_3
453	bond	Br	OCH_3	CH_2CH_3
454	bond	NO_2	OCH_3	CH_2CH_3
455	bond	SCH_3	OCH_3	CH_2CH_3
456	bond	SO_2CH_3	OCH_3	CH_2CH_3
457	bond	$SO_2CH_2CH_3$	OCH_3	CH_2CH_3
458	bond	CH_3	OCH_3	CH_2CH_3
459	bond	CF_3	OCH_3	CH_2CH_3
460	bond	$OCHF_2$	OCH_3	CH_2CH_3
461	CH_2	F	OCH_3	CH_2CH_3
462	CH_2	Cl	OCH_3	CH_2CH_3
463	CH_2	Br	OCH_3	CH_2CH_3
464	CH_2	NO_2	OCH_3	CH_2CH_3
465	CH_2	SCH_3	OCH_3	CH_2CH_3
466	CH_2	SO_2CH_3	OCH_3	CH_2CH_3

n	X	R^4	R^10	R^11
467	CH_2	$SO_2CH_2CH_3$	OCH_3	CH_2CH_3
468	CH_2	CH_3	OCH_3	CH_2CH_3
469	CH_2	CF_3	OCH_3	CH_2CH_3
470	CH_2	$OCHF_2$	OCH_3	CH_2CH_3
471	O	F	OCH_3	CH_2CH_3
472	O	Cl	OCH_3	CH_2CH_3
473	O	Br	OCH_3	CH_2CH_3
474	O	NO_2	OCH_3	CH_2CH_3
475	O	SCH_3	OCH_3	CH_2CH_3
476	O	SO_2CH_3	OCH_3	CH_2CH_3
477	O	$SO_2CH_2CH_3$	OCH_3	CH_2CH_3
478	O	CH_3	OCH_3	CH_2CH_3
479	O	CF_3	OCH_3	CH_2CH_3
480	O	$OCHF_2$	OCH_3	CH_2CH_3
481	S	F	OCH_3	CH_2CH_3
482	S	Cl	OCH_3	CH_2CH_3
483	S	Br	OCH_3	CH_2CH_3
484	S	NO_2	OCH_3	CH_2CH_3
485	S	SCH_3	OCH_3	CH_2CH_3
486	S	SO_2CH_3	OCH_3	CH_2CH_3
487	S	$SO_2CH_2CH_3$	OCH_3	CH_2CH_3
488	S	CH_3	OCH_3	CH_2CH_3
489	S	CF_3	OCH_3	CH_2CH_3
490	S	$OCHF_2$	OCH_3	CH_2CH_3
491	SO_2	F	OCH_3	CH_2CH_3
492	SO_2	Cl	OCH_3	CH_2CH_3
493	SO_2	Br	OCH_3	CH_2CH_3
494	SO_2	NO_2	OCH_3	CH_2CH_3
495	SO_2	SCH_3	OCH_3	CH_2CH_3
496	SO_2	SO_2CH_3	OCH_3	CH_2CH_3
497	SO_2	$SO_2CH_2CH_3$	OCH_3	CH_2CH_3
498	SO_2	CH_3	OCH_3	CH_2CH_3
499	SO_2	CF_3	OCH_3	CH_2CH_3
500	SO_2	$OCHF_2$	OCH_3	CH_2CH_3
501	bond	F	$OCH(CH_3)_2$	CH_3
502	bond	Cl	$OCH(CH_3)_2$	CH_3
503	bond	Br	$OCH(CH_3)_2$	CH_3
504	bond	NO_2	$OCH(CH_3)_2$	CH_3
505	bond	SCH_3	$OCH(CH_3)_2$	CH_3

n	X	R^4	R^{10}	R^{11}
506	bond	SO_2CH_3	$OCH(CH_3)_2$	CH_3
507	bond	$SO_2CH_2CH_3$	$OCH(CH_3)_2$	CH_3
508	bond	CH_3	$OCH(CH_3)_2$	CH_3
509	bond	CF_3	$OCH(CH_3)_2$	CH_3
510	bond	$OCHF_2$	$OCH(CH_3)_2$	CH_3
511	CH_2	F	$OCH(CH_3)_2$	CH_3
512	CH_2	Cl	$OCH(CH_3)_2$	CH_3
513	CH_2	Br	$OCH(CH_3)_2$	CH_3
514	CH_2	NO_2	$OCH(CH_3)_2$	CH_3
515	CH_2	SCH_3	$OCH(CH_3)_2$	CH_3
516	CH_2	SO_2CH_3	$OCH(CH_3)_2$	CH_3
517	CH_2	$SO_2CH_2CH_3$	$OCH(CH_3)_2$	CH_3
518	CH_2	CH_3	$OCH(CH_3)_2$	CH_3
519	CH_2	CF_3	$OCH(CH_3)_2$	CH_3
520	CH_2	$OCHF_2$	$OCH(CH_3)_2$	CH_3
521	O	F	$OCH(CH_3)_2$	CH_3
522	O	Cl	$OCH(CH_3)_2$	CH_3
523	O	Br	$OCH(CH_3)_2$	CH_3
524	O	NO_2	$OCH(CH_3)_2$	CH_3
525	O	SCH_3	$OCH(CH_3)_2$	CH_3
526	O	SO_2CH_3	$OCH(CH_3)_2$	CH_3
527	O	$SO_2CH_2CH_3$	$OCH(CH_3)_2$	CH_3
528	O	CH_3	$OCH(CH_3)_2$	CH_3
529	O	CF_3	$OCH(CH_3)_2$	CH_3
530	O	$OCHF_2$	$OCH(CH_3)_2$	CH_3
531	S	F	$OCH(CH_3)_2$	CH_3
532	S	Cl	$OCH(CH_3)_2$	CH_3
533	S	Br	$OCH(CH_3)_2$	CH_3
534	S	NO_2	$OCH(CH_3)_2$	CH_3
535	S	SCH_3	$OCH(CH_3)_2$	CH_3
536	S	SO_2CH_3	$OCH(CH_3)_2$	CH_3
537	S	$SO_2CH_2CH_3$	$OCH(CH_3)_2$	CH_3
538	S	CH_3	$OCH(CH_3)_2$	CH_3
539	S	CF_3	$OCH(CH_3)_2$	CH_3
540	S	$OCHF_2$	$OCH(CH_3)_2$	CH_3
541	SO_2	F	$OCH(CH_3)_2$	CH_3
542	SO_2	Cl	$OCH(CH_3)_2$	CH_3
543	SO_2	Br	$OCH(CH_3)_2$	CH_3
544	SO_2	NO_2	$OCH(CH_3)_2$	CH_3

n	X	R^4	R^{10}	R^{11}
545	SO_2	SCH_3	$OCH(CH_3)_2$	CH_3
546	SO_2	SO_2CH_3	$OCH(CH_3)_2$	CH_3
547	SO_2	$SO_2CH_2CH_3$	$OCH(CH_3)_2$	CH_3
548	SO_2	CH_3	$OCH(CH_3)_2$	CH_3
549	SO_2	CF_3	$OCH(CH_3)_2$	CH_3
550	SO_2	$OCHF_2$	$OCH(CH_3)_2$	CH_3
551	bond	F	$OCH(CH_3)_2$	CH_2CH_3
552	bond	Cl	$OCH(CH_3)_2$	CH_2CH_3
553	bond	Br	$OCH(CH_3)_2$	CH_2CH_3
554	bond	NO_2	$OCH(CH_3)_2$	CH_2CH_3
555	bond	SCH_3	$OCH(CH_3)_2$	CH_2CH_3
556	bond	SO_2CH_3	$OCH(CH_3)_2$	CH_2CH_3
557	bond	$SO_2CH_2CH_3$	$OCH(CH_3)_2$	CH_2CH_3
558	bond	CH_3	$OCH(CH_3)_2$	CH_2CH_3
559	bond	CF_3	$OCH(CH_3)_2$	CH_2CH_3
560	bond	$OCHF_2$	$OCH(CH_3)_2$	CH_2CH_3
561	CH_2	F	$OCH(CH_3)_2$	CH_2CH_3
562	CH_2	Cl	$OCH(CH_3)_2$	CH_2CH_3
563	CH_2	Br	$OCH(CH_3)_2$	CH_2CH_3
564	CH_2	NO_2	$OCH(CH_3)_2$	CH_2CH_3
565	CH_2	SCH_3	$OCH(CH_3)_2$	CH_2CH_3
566	CH_2	SO_2CH_3	$OCH(CH_3)_2$	CH_2CH_3
567	CH_2	$SO_2CH_2CH_3$	$OCH(CH_3)_2$	CH_2CH_3
568	CH_2	CH_3	$OCH(CH_3)_2$	CH_2CH_3
569	CH_2	CF_3	$OCH(CH_3)_2$	CH_2CH_3
570	CH_2	$OCHF_2$	$OCH(CH_3)_2$	CH_2CH_3
571	O	F	$OCH(CH_3)_2$	CH_2CH_3
572	O	Cl	$OCH(CH_3)_2$	CH_2CH_3
573	O	Br	$OCH(CH_3)_2$	CH_2CH_3
574	O	NO_2	$OCH(CH_3)_2$	CH_2CH_3
575	O	SCH_3	$OCH(CH_3)_2$	CH_2CH_3
576	O	SO_2CH_3	$OCH(CH_3)_2$	CH_2CH_3
577	O	$SO_2CH_2CH_3$	$OCH(CH_3)_2$	CH_2CH_3
578	O	CH_3	$OCH(CH_3)_2$	CH_2CH_3
579	O	CF_3	$OCH(CH_3)_2$	CH_2CH_3
580	O	$OCHF_2$	$OCH(CH_3)_2$	CH_2CH_3
581	S	F	$OCH(CH_3)_2$	CH_2CH_3
582	S	Cl	$OCH(CH_3)_2$	CH_2CH_3
583	S	Br	$OCH(CH_3)_2$	CH_2CH_3

n	X	R^4	R^{10}	R^{11}
584	S	NO_2	$OCH(CH_3)_2$	CH_2CH_3
585	S	SCH_3	$OCH(CH_3)_2$	CH_2CH_3
586	S	SO_2CH_3	$OCH(CH_3)_2$	CH_2CH_3
587	S	$SO_2CH_2CH_3$	$OCH(CH_3)_2$	CH_2CH_3
588	S	CH_3	$OCH(CH_3)_2$	CH_2CH_3
589	S	CF_3	$OCH(CH_3)_2$	CH_2CH_3
590	S	$OCHF_2$	$OCH(CH_3)_2$	CH_2CH_3
591	SO_2	F	$OCH(CH_3)_2$	CH_2CH_3
592	SO_2	Cl	$OCH(CH_3)_2$	CH_2CH_3
593	SO_2	Br	$OCH(CH_3)_2$	CH_2CH_3
594	SO_2	NO_2	$OCH(CH_3)_2$	CH_2CH_3
595	SO_2	SCH_3	$OCH(CH_3)_2$	CH_2CH_3
596	SO_2	SO_2CH_3	$OCH(CH_3)_2$	CH_2CH_3
597	SO_2	$SO_2CH_2CH_3$	$OCH(CH_3)_2$	CH_2CH_3
598	SO_2	CH_3	$OCH(CH_3)_2$	CH_2CH_3
599	SO_2	CF_3	$OCH(CH_3)_2$	CH_2CH_3
600	SO_2	$OCHF_2$	$OCH(CH_3)_2$	CH_2CH_3
601	bond	F	$OCH_2C_6H_5$	CH_3
602	bond	Cl	$OCH_2C_6H_5$	CH_3
603	bond	Br	$OCH_2C_6H_5$	CH_3
604	bond	NO_2	$OCH_2C_6H_5$	CH_3
605	bond	SCH_3	$OCH_2C_6H_5$	CH_3
606	bond	SO_2CH_3	$OCH_2C_6H_5$	CH_3
607	bond	$SO_2CH_2CH_3$	$OCH_2C_6H_5$	CH_3
608	bond	CH_3	$OCH_2C_6H_5$	CH_3
609	bond	CF_3	$OCH_2C_6H_5$	CH_3
610	bond	$OCHF_2$	$OCH_2C_6H_5$	CH_3
611	CH_2	F	$OCH_2C_6H_5$	CH_3
612	CH_2	Cl	$OCH_2C_6H_5$	CH_3
613	CH_2	Br	$OCH_2C_6H_5$	CH_3
614	CH_2	NO_2	$OCH_2C_6H_5$	CH_3
615	CH_2	SCH_3	$OCH_2C_6H_5$	CH_3
616	CH_2	SO_2CH_3	$OCH_2C_6H_5$	CH_3
617	CH_2	$SO_2CH_2CH_3$	$OCH_2C_6H_5$	CH_3
618	CH_2	CH_3	$OCH_2C_6H_5$	CH_3
619	CH_2	CF_3	$OCH_2C_6H_5$	CH_3
620	CH_2	$OCHF_2$	$OCH_2C_6H_5$	CH_3
621	O	F	$OCH_2C_6H_5$	CH_3
622	O	Cl	$OCH_2C_6H_5$	CH_3

n	X	R^4	R^{10}	R^{11}
623	O	Br	$OCH_2C_6H_5$	CH_3
624	O	NO_2	$OCH_2C_6H_5$	CH_3
625	O	SCH_3	$OCH_2C_6H_5$	CH_3
626	O	SO_2CH_3	$OCH_2C_6H_5$	CH_3
627	O	$SO_2CH_2CH_3$	$OCH_2C_6H_5$	CH_3
628	O	CH_3	$OCH_2C_6H_5$	CH_3
629	O	CF_3	$OCH_2C_6H_5$	CH_3
630	O	$OCHF_2$	$OCH_2C_6H_5$	CH_3
631	S	F	$OCH_2C_6H_5$	CH_3
632	S	Cl	$OCH_2C_6H_5$	CH_3
633	S	Br	$OCH_2C_6H_5$	CH_3
634	S	NO_2	$OCH_2C_6H_5$	CH_3
635	S	SCH_3	$OCH_2C_6H_5$	CH_3
636	S	SO_2CH_3	$OCH_2C_6H_5$	CH_3
637	S	$SO_2CH_2CH_3$	$OCH_2C_6H_5$	CH_3
638	S	CH_3	$OCH_2C_6H_5$	CH_3
639	S	CF_3	$OCH_2C_6H_5$	CH_3
640	S	$OCHF_2$	$OCH_2C_6H_5$	CH_3
641	SO_2	F	$OCH_2C_6H_5$	CH_3
642	SO_2	Cl	$OCH_2C_6H_5$	CH_3
643	SO_2	Br	$OCH_2C_6H_5$	CH_3
644	SO_2	NO_2	$OCH_2C_6H_5$	CH_3
645	SO_2	SCH_3	$OCH_2C_6H_5$	CH_3
646	SO_2	SO_2CH_3	$OCH_2C_6H_5$	CH_3
647	SO_2	$SO_2CH_2CH_3$	$OCH_2C_6H_5$	CH_3
648	SO_2	CH_3	$OCH_2C_6H_5$	CH_3
649	SO_2	CF_3	$OCH_2C_6H_5$	CH_3
650	SO_2	$OCHF_2$	$OCH_2C_6H_5$	CH_3
651	bond	F	$OCH_2C_6H_5$	CH_2CH_3
652	bond	Cl	$OCH_2C_6H_5$	CH_2CH_3
653	bond	Br	$OCH_2C_6H_5$	CH_2CH_3
654	bond	NO_2	$OCH_2C_6H_5$	CH_2CH_3
655	bond	SCH_3	$OCH_2C_6H_5$	CH_2CH_3
656	bond	SO_2CH_3	$OCH_2C_6H_5$	CH_2CH_3
657	bond	$SO_2CH_2CH_3$	$OCH_2C_6H_5$	CH_2CH_3
658	bond	CH_3	$OCH_2C_6H_5$	CH_2CH_3
659	bond	CF_3	$OCH_2C_6H_5$	CH_2CH_3
660	bond	$OCHF_2$	$OCH_2C_6H_5$	CH_2CH_3
661	CH_2	F	$OCH_2C_6H_5$	CH_2CH_3

n	X	R^4	R^{10}	R^{11}
662	CH_2	Cl	$OCH_2C_6H_5$	CH_2CH_3
663	CH_2	Br	$OCH_2C_6H_5$	CH_2CH_3
664	CH_2	NO_2	$OCH_2C_6H_5$	CH_2CH_3
665	CH_2	SCH_3	$OCH_2C_6H_5$	CH_2CH_3
666	CH_2	SO_2CH_3	$OCH_2C_6H_5$	CH_2CH_3
667	CH_2	$SO_2CH_2CH_3$	$OCH_2C_6H_5$	CH_2CH_3
668	CH_2	CH_3	$OCH_2C_6H_5$	CH_2CH_3
669	CH_2	CF_3	$OCH_2C_6H_5$	CH_2CH_3
670	CH_2	$OCHF_2$	$OCH_2C_6H_5$	CH_2CH_3
671	O	F	$OCH_2C_6H_5$	CH_2CH_3
672	O	Cl	$OCH_2C_6H_5$	CH_2CH_3
673	O	Br	$OCH_2C_6H_5$	CH_2CH_3
674	O	NO_2	$OCH_2C_6H_5$	CH_2CH_3
675	O	SCH_3	$OCH_2C_6H_5$	CH_2CH_3
676	O	SO_2CH_3	$OCH_2C_6H_5$	CH_2CH_3
677	O	$SO_2CH_2CH_3$	$OCH_2C_6H_5$	CH_2CH_3
678	O	CH_3	$OCH_2C_6H_5$	CH_2CH_3
679	O	CF_3	$OCH_2C_6H_5$	CH_2CH_3
680	O	$OCHF_2$	$OCH_2C_6H_5$	CH_2CH_3
681	S	F	$OCH_2C_6H_5$	CH_2CH_3
682	S	Cl	$OCH_2C_6H_5$	CH_2CH_3
683	S	Br	$OCH_2C_6H_5$	CH_2CH_3
684	S	NO_2	$OCH_2C_6H_5$	CH_2CH_3
685	S	SCH_3	$OCH_2C_6H_5$	CH_2CH_3
686	S	SO_2CH_3	$OCH_2C_6H_5$	CH_2CH_3
687	S	$SO_2CH_2CH_3$	$OCH_2C_6H_5$	CH_2CH_3
688	S	CH_3	$OCH_2C_6H_5$	CH_2CH_3
689	S	CF_3	$OCH_2C_6H_5$	CH_2CH_3
690	S	$OCHF_2$	$OCH_2C_6H_5$	CH_2CH_3
691	SO_2	F	$OCH_2C_6H_5$	CH_2CH_3
692	SO_2	Cl	$OCH_2C_6H_5$	CH_2CH_3
693	SO_2	Br	$OCH_2C_6H_5$	CH_2CH_3
694	SO_2	NO_2	$OCH_2C_6H_5$	CH_2CH_3
695	SO_2	SCH_3	$OCH_2C_6H_5$	CH_2CH_3
696	SO_2	SO_2CH_3	$OCH_2C_6H_5$	CH_2CH_3
697	SO_2	$SO_2CH_2CH_3$	$OCH_2C_6H_5$	CH_2CH_3
698	SO_2	CH_3	$OCH_2C_6H_5$	CH_2CH_3
699	SO_2	CF_3	$OCH_2C_6H_5$	CH_2CH_3
700	SO_2	$OCHF_2$	$OCH_2C_6H_5$	CH_2CH_3

n	X	R^4	R^{10}	R^{11}
701	bond	F	$OSO_2(4-CH_3-C_6H_4)$	CH_3
702	bond	Cl	$OSO_2(4-CH_3-C_6H_4)$	CH_3
703	bond	Br	$OSO_2(4-CH_3-C_6H_4)$	CH_3
704	bond	NO_2	$OSO_2(4-CH_3-C_6H_4)$	CH_3
705	bond	SCH_3	$OSO_2(4-CH_3-C_6H_4)$	CH_3
706	bond	SO_2CH_3	$OSO_2(4-CH_3-C_6H_4)$	CH_3
707	bond	$SO_2CH_2CH_3$	$OSO_2(4-CH_3-C_6H_4)$	CH_3
708	bond	CH_3	$OSO_2(4-CH_3-C_6H_4)$	CH_3
709	bond	CF_3	$OSO_2(4-CH_3-C_6H_4)$	CH_3
710	bond	$OCHF_2$	$OSO_2(4-CH_3-C_6H_4)$	CH_3
711	CH_2	F	$OSO_2(4-CH_3-C_6H_4)$	CH_3
712	CH_2	Cl	$OSO_2(4-CH_3-C_6H_4)$	CH_3
713	CH_2	Br	$OSO_2(4-CH_3-C_6H_4)$	CH_3
714	CH_2	NO_2	$OSO_2(4-CH_3-C_6H_4)$	CH_3
715	CH_2	SCH_3	$OSO_2(4-CH_3-C_6H_4)$	CH_3
716	CH_2	SO_2CH_3	$OSO_2(4-CH_3-C_6H_4)$	CH_3
717	CH_2	$SO_2CH_2CH_3$	$OSO_2(4-CH_3-C_6H_4)$	CH_3
718	CH_2	CH_3	$OSO_2(4-CH_3-C_6H_4)$	CH_3
719	CH_2	CF_3	$OSO_2(4-CH_3-C_6H_4)$	CH_3
720	CH_2	$OCHF_2$	$OSO_2(4-CH_3-C_6H_4)$	CH_3
721	O	F	$OSO_2(4-CH_3-C_6H_4)$	CH_3
722	O	Cl	$OSO_2(4-CH_3-C_6H_4)$	CH_3
723	O	Br	$OSO_2(4-CH_3-C_6H_4)$	CH_3
724	O	NO_2	$OSO_2(4-CH_3-C_6H_4)$	CH_3
725	O	SCH_3	$OSO_2(4-CH_3-C_6H_4)$	CH_3
726	O	SO_2CH_3	$OSO_2(4-CH_3-C_6H_4)$	CH_3
727	O	$SO_2CH_2CH_3$	$OSO_2(4-CH_3-C_6H_4)$	CH_3
728	O	CH_3	$OSO_2(4-CH_3-C_6H_4)$	CH_3
729	O	CF_3	$OSO_2(4-CH_3-C_6H_4)$	CH_3
730	O	$OCHF_2$	$OSO_2(4-CH_3-C_6H_4)$	CH_3
731	S	F	$OSO_2(4-CH_3-C_6H_4)$	CH_3
732	S	Cl	$OSO_2(4-CH_3-C_6H_4)$	CH_3
733	S	Br	$OSO_2(4-CH_3-C_6H_4)$	CH_3
734	S	NO_2	$OSO_2(4-CH_3-C_6H_4)$	CH_3
735	S	SCH_3	$OSO_2(4-CH_3-C_6H_4)$	CH_3
736	S	SO_2CH_3	$OSO_2(4-CH_3-C_6H_4)$	CH_3
737	S	$SO_2CH_2CH_3$	$OSO_2(4-CH_3-C_6H_4)$	CH_3
738	S	CH_3	$OSO_2(4-CH_3-C_6H_4)$	CH_3
739	S	CF_3	$OSO_2(4-CH_3-C_6H_4)$	CH_3

n	X	R^4	R^{10}	R^{11}
740	S	$OCHF_2$	$OSO_2(4-CH_3-C_6H_4)$	CH_3
741	SO_2	F	$OSO_2(4-CH_3-C_6H_4)$	CH_3
742	SO_2	Cl	$OSO_2(4-CH_3-C_6H_4)$	CH_3
743	SO_2	Br	$OSO_2(4-CH_3-C_6H_4)$	CH_3
744	SO_2	NO_2	$OSO_2(4-CH_3-C_6H_4)$	CH_3
745	SO_2	SCH_3	$OSO_2(4-CH_3-C_6H_4)$	CH_3
746	SO_2	SO_2CH_3	$OSO_2(4-CH_3-C_6H_4)$	CH_3
747	SO_2	$SO_2CH_2CH_3$	$OSO_2(4-CH_3-C_6H_4)$	CH_3
748	SO_2	CH_3	$OSO_2(4-CH_3-C_6H_4)$	CH_3
749	SO_2	CF_3	$OSO_2(4-CH_3-C_6H_4)$	CH_3
750	SO_2	$OCHF_2$	$OSO_2(4-CH_3-C_6H_4)$	CH_3
751	bond	F	$OSO_2(4-CH_3-C_6H_4)$	CH_2CH_3
752	bond	Cl	$OSO_2(4-CH_3-C_6H_4)$	CH_2CH_3
753	bond	Br	$OSO_2(4-CH_3-C_6H_4)$	CH_2CH_3
754	bond	NO_2	$OSO_2(4-CH_3-C_6H_4)$	CH_2CH_3
755	bond	SCH_3	$OSO_2(4-CH_3-C_6H_4)$	CH_2CH_3
756	bond	SO_2CH_3	$OSO_2(4-CH_3-C_6H_4)$	CH_2CH_3
757	bond	$SO_2CH_2CH_3$	$OSO_2(4-CH_3-C_6H_4)$	CH_2CH_3
758	bond	CH_3	$OSO_2(4-CH_3-C_6H_4)$	CH_2CH_3
759	bond	CF_3	$OSO_2(4-CH_3-C_6H_4)$	CH_2CH_3
760	bond	$OCHF_2$	$OSO_2(4-CH_3-C_6H_4)$	CH_2CH_3
761	CH_2	F	$OSO_2(4-CH_3-C_6H_4)$	CH_2CH_3
762	CH_2	Cl	$OSO_2(4-CH_3-C_6H_4)$	CH_2CH_3
763	CH_2	Br	$OSO_2(4-CH_3-C_6H_4)$	CH_2CH_3
764	CH_2	NO_2	$OSO_2(4-CH_3-C_6H_4)$	CH_2CH_3
765	CH_2	SCH_3	$OSO_2(4-CH_3-C_6H_4)$	CH_2CH_3
766	CH_2	SO_2CH_3	$OSO_2(4-CH_3-C_6H_4)$	CH_2CH_3
767	CH_2	$SO_2CH_2CH_3$	$OSO_2(4-CH_3-C_6H_4)$	CH_2CH_3
768	CH_2	CH_3	$OSO_2(4-CH_3-C_6H_4)$	CH_2CH_3
769	CH_2	CF_3	$OSO_2(4-CH_3-C_6H_4)$	CH_2CH_3
770	CH_2	$OCHF_2$	$OSO_2(4-CH_3-C_6H_4)$	CH_2CH_3
771	O	F	$OSO_2(4-CH_3-C_6H_4)$	CH_2CH_3
772	O	Cl	$OSO_2(4-CH_3-C_6H_4)$	CH_2CH_3
773	O	Br	$OSO_2(4-CH_3-C_6H_4)$	CH_2CH_3
774	O	NO_2	$OSO_2(4-CH_3-C_6H_4)$	CH_2CH_3
775	O	SCH_3	$OSO_2(4-CH_3-C_6H_4)$	CH_2CH_3
776	O	SO_2CH_3	$OSO_2(4-CH_3-C_6H_4)$	CH_2CH_3
777	O	$SO_2CH_2CH_3$	$OSO_2(4-CH_3-C_6H_4)$	CH_2CH_3
778	O	CH_3	$OSO_2(4-CH_3-C_6H_4)$	CH_2CH_3

n	X	R^4	R^{10}	R^{11}
779	O	CF_3	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	CH_2CH_3
780	O	$OCHF_2$	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	CH_2CH_3
781	S	F	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	CH_2CH_3
782	S	Cl	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	CH_2CH_3
783	S	Br	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	CH_2CH_3
784	S	NO_2	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	CH_2CH_3
785	S	SCH_3	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	CH_2CH_3
786	S	SO_2CH_3	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	CH_2CH_3
787	S	$SO_2CH_2CH_3$	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	CH_2CH_3
788	S	CH_3	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	CH_2CH_3
789	S	CF_3	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	CH_2CH_3
790	S	$OCHF_2$	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	CH_2CH_3
791	SO_2	F	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	CH_2CH_3
792	SO_2	Cl	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	CH_2CH_3
793	SO_2	Br	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	CH_2CH_3
794	SO_2	NO_2	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	CH_2CH_3
795	SO_2	SCH_3	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	CH_2CH_3
796	SO_2	SO_2CH_3	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	CH_2CH_3
797	SO_2	$SO_2CH_2CH_3$	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	CH_2CH_3
798	SO_2	CH_3	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	CH_2CH_3
799	SO_2	CF_3	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	CH_2CH_3
800	SO_2	$OCHF_2$	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	CH_2CH_3
801	bond	F	SCH_3	CH_3
802	bond	Cl	SCH_3	CH_3
803	bond	Br	SCH_3	CH_3
804	bond	NO_2	SCH_3	CH_3
805	bond	SCH_3	SCH_3	CH_3
806	bond	SO_2CH_3	SCH_3	CH_3
807	bond	$SO_2CH_2CH_3$	SCH_3	CH_3
808	bond	CH_3	SCH_3	CH_3
809	bond	CF_3	SCH_3	CH_3
810	bond	$OCHF_2$	SCH_3	CH_3
811	CH_2	F	SCH_3	CH_3
812	CH_2	Cl	SCH_3	CH_3
813	CH_2	Br	SCH_3	CH_3
814	CH_2	NO_2	SCH_3	CH_3
815	CH_2	SCH_3	SCH_3	CH_3
816	CH_2	SO_2CH_3	SCH_3	CH_3
817	CH_2	$SO_2CH_2CH_3$	SCH_3	CH_3

n	X	R^4	R^{10}	R^{11}
818	CH_2	CH_3	SCH_3	CH_3
819	CH_2	CF_3	SCH_3	CH_3
820	CH_2	$OCHF_2$	SCH_3	CH_3
821	O	F	SCH_3	CH_3
822	O	Cl	SCH_3	CH_3
823	O	Br	SCH_3	CH_3
824	O	NO_2	SCH_3	CH_3
825	O	SCH_3	SCH_3	CH_3
826	O	SO_2CH_3	SCH_3	CH_3
827	O	$SO_2CH_2CH_3$	SCH_3	CH_3
828	O	CH_3	SCH_3	CH_3
829	O	CF_3	SCH_3	CH_3
830	O	$OCHF_2$	SCH_3	CH_3
831	S	F	SCH_3	CH_3
832	S	Cl	SCH_3	CH_3
833	S	Br	SCH_3	CH_3
834	S	NO_2	SCH_3	CH_3
835	S	SCH_3	SCH_3	CH_3
836	S	SO_2CH_3	SCH_3	CH_3
837	S	$SO_2CH_2CH_3$	SCH_3	CH_3
838	S	CH_3	SCH_3	CH_3
839	S	CF_3	SCH_3	CH_3
840	S	$OCHF_2$	SCH_3	CH_3
841	SO_2	F	SCH_3	CH_3
842	SO_2	Cl	SCH_3	CH_3
843	SO_2	Br	SCH_3	CH_3
844	SO_2	NO_2	SCH_3	CH_3
845	SO_2	SCH_3	SCH_3	CH_3
846	SO_2	SO_2CH_3	SCH_3	CH_3
847	SO_2	$SO_2CH_2CH_3$	SCH_3	CH_3
848	SO_2	CH_3	SCH_3	CH_3
849	SO_2	CF_3	SCH_3	CH_3
850	SO_2	$OCHF_2$	SCH_3	CH_3
851	bond	F	SCH_3	CH_2CH_3
852	bond	Cl	SCH_3	CH_2CH_3
853	bond	Br	SCH_3	CH_2CH_3
854	bond	NO_2	SCH_3	CH_2CH_3
855	bond	SCH_3	SCH_3	CH_2CH_3
856	bond	SO_2CH_3	SCH_3	CH_2CH_3

n	X	R^4	R^{10}	R^{11}
857	bond	$SO_2CH_2CH_3$	SCH_3	CH_2CH_3
858	bond	CH_3	SCH_3	CH_2CH_3
859	bond	CF_3	SCH_3	CH_2CH_3
860	bond	$OCHF_2$	SCH_3	CH_2CH_3
861	CH_2	F	SCH_3	CH_2CH_3
862	CH_2	Cl	SCH_3	CH_2CH_3
863	CH_2	Br	SCH_3	CH_2CH_3
864	CH_2	NO_2	SCH_3	CH_2CH_3
865	CH_2	SCH_3	SCH_3	CH_2CH_3
866	CH_2	SO_2CH_3	SCH_3	CH_2CH_3
867	CH_2	$SO_2CH_2CH_3$	SCH_3	CH_2CH_3
868	CH_2	CH_3	SCH_3	CH_2CH_3
869	CH_2	CF_3	SCH_3	CH_2CH_3
870	CH_2	$OCHF_2$	SCH_3	CH_2CH_3
871	O	F	SCH_3	CH_2CH_3
872	O	Cl	SCH_3	CH_2CH_3
873	O	Br	SCH_3	CH_2CH_3
874	O	NO_2	SCH_3	CH_2CH_3
875	O	SCH_3	SCH_3	CH_2CH_3
876	O	SO_2CH_3	SCH_3	CH_2CH_3
877	O	$SO_2CH_2CH_3$	SCH_3	CH_2CH_3
878	O	CH_3	SCH_3	CH_2CH_3
879	O	CF_3	SCH_3	CH_2CH_3
880	O	$OCHF_2$	SCH_3	CH_2CH_3
881	S	F	SCH_3	CH_2CH_3
882	S	Cl	SCH_3	CH_2CH_3
883	S	Br	SCH_3	CH_2CH_3
884	S	NO_2	SCH_3	CH_2CH_3
885	S	SCH_3	SCH_3	CH_2CH_3
886	S	SO_2CH_3	SCH_3	CH_2CH_3
887	S	$SO_2CH_2CH_3$	SCH_3	CH_2CH_3
888	S	CH_3	SCH_3	CH_2CH_3
889	S	CF_3	SCH_3	CH_2CH_3
890	S	$OCHF_2$	SCH_3	CH_2CH_3
891	SO_2	F	SCH_3	CH_2CH_3
892	SO_2	Cl	SCH_3	CH_2CH_3
893	SO_2	Br	SCH_3	CH_2CH_3
894	SO_2	NO_2	SCH_3	CH_2CH_3
895	SO_2	SCH_3	SCH_3	CH_2CH_3

n	X	R^4	R^{10}	R^{11}
896	SO_2	SO_2CH_3	SCH_3	CH_2CH_3
897	SO_2	$SO_2CH_2CH_3$	SCH_3	CH_2CH_3
898	SO_2	CH_3	SCH_3	CH_2CH_3
899	SO_2	CF_3	SCH_3	CH_2CH_3
900	SO_2	$OCHF_2$	SCH_3	CH_2CH_3
901	bond	F	Cl	CH_3
902	bond	Cl	Cl	CH_3
903	bond	Br	Cl	CH_3
904	bond	NO_2	Cl	CH_3
905	bond	SCH_3	Cl	CH_3
906	bond	SO_2CH_3	Cl	CH_3
907	bond	$SO_2CH_2CH_3$	Cl	CH_3
908	bond	CH_3	Cl	CH_3
909	bond	CF_3	Cl	CH_3
910	bond	$OCHF_2$	Cl	CH_3
911	CH_2	F	Cl	CH_3
912	CH_2	Cl	Cl	CH_3
913	CH_2	Br	Cl	CH_3
914	CH_2	NO_2	Cl	CH_3
915	CH_2	SCH_3	Cl	CH_3
916	CH_2	SO_2CH_3	Cl	CH_3
917	CH_2	$SO_2CH_2CH_3$	Cl	CH_3
918	CH_2	CH_3	Cl	CH_3
919	CH_2	CF_3	Cl	CH_3
920	CH_2	$OCHF_2$	Cl	CH_3
921	O	F	Cl	CH_3
922	O	Cl	Cl	CH_3
923	O	Br	Cl	CH_3
924	O	NO_2	Cl	CH_3
925	O	SCH_3	Cl	CH_3
926	O	SO_2CH_3	Cl	CH_3
927	O	$SO_2CH_2CH_3$	Cl	CH_3
928	O	CH_3	Cl	CH_3
929	O	CF_3	Cl	CH_3
930	O	$OCHF_2$	Cl	CH_3
931	S	F	Cl	CH_3
932	S	Cl	Cl	CH_3
933	S	Br	Cl	CH_3
934	S	NO_2	Cl	CH_3

n	X	R^4	R^{10}	R^{11}
935	S	SCH_3	Cl	CH_3
936	S	SO_2CH_3	Cl	CH_3
937	S	$SO_2CH_2CH_3$	Cl	CH_3
938	S	CH_3	Cl	CH_3
939	S	CF_3	Cl	CH_3
940	S	$OCHF_2$	Cl	CH_3
941	SO_2	F	Cl	CH_3
942	SO_2	Cl	Cl	CH_3
943	SO_2	Br	Cl	CH_3
944	SO_2	NO_2	Cl	CH_3
945	SO_2	SCH_3	Cl	CH_3
946	SO_2	SO_2CH_3	Cl	CH_3
947	SO_2	$SO_2CH_2CH_3$	Cl	CH_3
948	SO_2	CH_3	Cl	CH_3
949	SO_2	CF_3	Cl	CH_3
950	SO_2	$OCHF_2$	Cl	CH_3
951	bond	F	Cl	CH_2CH_3
952	bond	Cl	Cl	CH_2CH_3
953	bond	Br	Cl	CH_2CH_3
954	bond	NO_2	Cl	CH_2CH_3
955	bond	SCH_3	Cl	CH_2CH_3
956	bond	SO_2CH_3	Cl	CH_2CH_3
957	bond	$SO_2CH_2CH_3$	Cl	CH_2CH_3
958	bond	CH_3	Cl	CH_2CH_3
959	bond	CF_3	Cl	CH_2CH_3
960	bond	$OCHF_2$	Cl	CH_2CH_3
961	CH_2	F	Cl	CH_2CH_3
962	CH_2	Cl	Cl	CH_2CH_3
963	CH_2	Br	Cl	CH_2CH_3
964	CH_2	NO_2	Cl	CH_2CH_3
965	CH_2	SCH_3	Cl	CH_2CH_3
966	CH_2	SO_2CH_3	Cl	CH_2CH_3
967	CH_2	$SO_2CH_2CH_3$	Cl	CH_2CH_3
968	CH_2	CH_3	Cl	CH_2CH_3
969	CH_2	CF_3	Cl	CH_2CH_3
970	CH_2	$OCHF_2$	Cl	CH_2CH_3
971	O	F	Cl	CH_2CH_3
972	O	Cl	Cl	CH_2CH_3
973	O	Br	Cl	CH_2CH_3

n	X	R^4	R^{10}	R^{11}
974	O	NO_2	Cl	CH_2CH_3
975	O	SCH_3	Cl	CH_2CH_3
976	O	SO_2CH_3	Cl	CH_2CH_3
977	O	$SO_2CH_2CH_3$	Cl	CH_2CH_3
978	O	CH_3	Cl	CH_2CH_3
979	O	CF_3	Cl	CH_2CH_3
980	O	$OCHF_2$	Cl	CH_2CH_3
981	S	F	Cl	CH_2CH_3
982	S	Cl	Cl	CH_2CH_3
983	S	Br	Cl	CH_2CH_3
984	S	NO_2	Cl	CH_2CH_3
985	S	SCH_3	Cl	CH_2CH_3
986	S	SO_2CH_3	Cl	CH_2CH_3
987	S	$SO_2CH_2CH_3$	Cl	CH_2CH_3
988	S	CH_3	Cl	CH_2CH_3
989	S	CF_3	Cl	CH_2CH_3
990	S	$OCHF_2$	Cl	CH_2CH_3
991	SO_2	F	Cl	CH_2CH_3
992	SO_2	Cl	Cl	CH_2CH_3
993	SO_2	Br	Cl	CH_2CH_3
994	SO_2	NO_2	Cl	CH_2CH_3
995	SO_2	SCH_3	Cl	CH_2CH_3
996	SO_2	SO_2CH_3	Cl	CH_2CH_3
997	SO_2	$SO_2CH_2CH_3$	Cl	CH_2CH_3
998	SO_2	CH_3	Cl	CH_2CH_3
999	SO_2	CF_3	Cl	CH_2CH_3
1000	SO_2	$OCHF_2$	Cl	CH_2CH_3
1001	bond	F	OH	$CH(CH_3)_2$
1002	bond	Cl	OH	$CH(CH_3)_2$
1003	bond	Br	OH	$CH(CH_3)_2$
1004	bond	NO_2	OH	$CH(CH_3)_2$
1005	bond	SCH_3	OH	$CH(CH_3)_2$
1006	bond	SO_2CH_3	OH	$CH(CH_3)_2$
1007	bond	$SO_2CH_2CH_3$	OH	$CH(CH_3)_2$
1008	bond	CH_3	OH	$CH(CH_3)_2$
1009	bond	CF_3	OH	$CH(CH_3)_2$
1010	bond	$OCHF_2$	OH	$CH(CH_3)_2$
1011	CH_2	F	OH	$CH(CH_3)_2$
1012	CH_2	Cl	OH	$CH(CH_3)_2$

n	X	R^4	R^{10}	R^{11}
2025	CH_2	Br	OH	$CH(CH_3)_2$
2026	CH_2	NO_2	OH	$CH(CH_3)_2$
2027	CH_2	SCH_3	OH	$CH(CH_3)_2$
2028	CH_2	SO_2CH_3	OH	$CH(CH_3)_2$
2029	CH_2	$SO_2CH_2CH_3$	OH	$CH(CH_3)_2$
2030	CH_2	CH_3	OH	$CH(CH_3)_2$
2031	CH_2	CF_3	OH	$CH(CH_3)_2$
2032	CH_2	$OCHF_2$	OH	$CH(CH_3)_2$
2033	O	F	OH	$CH(CH_3)_2$
2034	O	Cl	OH	$CH(CH_3)_2$
2035	O	Br	OH	$CH(CH_3)_2$
2036	O	NO_2	OH	$CH(CH_3)_2$
2037	O	SCH_3	OH	$CH(CH_3)_2$
2038	O	SO_2CH_3	OH	$CH(CH_3)_2$
2039	O	$SO_2CH_2CH_3$	OH	$CH(CH_3)_2$
2040	O	CH_3	OH	$CH(CH_3)_2$
2041	O	CF_3	OH	$CH(CH_3)_2$
2042	O	$OCHF_2$	OH	$CH(CH_3)_2$
2043	S	F	OH	$CH(CH_3)_2$
2044	S	Cl	OH	$CH(CH_3)_2$
2045	S	Br	OH	$CH(CH_3)_2$
2046	S	NO_2	OH	$CH(CH_3)_2$
2047	S	SCH_3	OH	$CH(CH_3)_2$
2048	S	SO_2CH_3	OH	$CH(CH_3)_2$
2049	S	$SO_2CH_2CH_3$	OH	$CH(CH_3)_2$
2050	S	CH_3	OH	$CH(CH_3)_2$
2051	S	CF_3	OH	$CH(CH_3)_2$
2052	S	$OCHF_2$	OH	$CH(CH_3)_2$
2053	SO_2	F	OH	$CH(CH_3)_2$
2054	SO_2	Cl	OH	$CH(CH_3)_2$
2055	SO_2	Br	OH	$CH(CH_3)_2$
2056	SO_2	NO_2	OH	$CH(CH_3)_2$
2057	SO_2	SCH_3	OH	$CH(CH_3)_2$
2058	SO_2	SO_2CH_3	OH	$CH(CH_3)_2$
2059	SO_2	$SO_2CH_2CH_3$	OH	$CH(CH_3)_2$
2060	SO_2	CH_3	OH	$CH(CH_3)_2$
2061	SO_2	CF_3	OH	$CH(CH_3)_2$
2062	SO_2	$OCHF_2$	OH	$CH(CH_3)_2$

n	X	R^4	R^{10}	R^{11}
2063	bond	F	OH	$C(CH_3)_3$
2064	bond	Cl	OH	$C(CH_3)_3$
2065	bond	Br	OH	$C(CH_3)_3$
2066	bond	NO_2	OH	$C(CH_3)_3$
2067	bond	SCH_3	OH	$C(CH_3)_3$
2068	bond	SO_2CH_3	OH	$C(CH_3)_3$
2069	bond	$SO_2CH_2CH_3$	OH	$C(CH_3)_3$
2070	bond	CH_3	OH	$C(CH_3)_3$
2071	bond	CF_3	OH	$C(CH_3)_3$
2072	bond	$OCHF_2$	OH	$C(CH_3)_3$
2073	CH_2	F	OH	$C(CH_3)_3$
2074	CH_2	Cl	OH	$C(CH_3)_3$
2075	CH_2	Br	OH	$C(CH_3)_3$
2076	CH_2	NO_2	OH	$C(CH_3)_3$
2077	CH_2	SCH_3	OH	$C(CH_3)_3$
2078	CH_2	SO_2CH_3	OH	$C(CH_3)_3$
2079	CH_2	$SO_2CH_2CH_3$	OH	$C(CH_3)_3$
2080	CH_2	CH_3	OH	$C(CH_3)_3$
2081	CH_2	CF_3	OH	$C(CH_3)_3$
2082	CH_2	$OCHF_2$	OH	$C(CH_3)_3$
2083	O	F	OH	$C(CH_3)_3$
2084	O	Cl	OH	$C(CH_3)_3$
2085	O	Br	OH	$C(CH_3)_3$
2086	O	NO_2	OH	$C(CH_3)_3$
2087	O	SCH_3	OH	$C(CH_3)_3$
2088	O	SO_2CH_3	OH	$C(CH_3)_3$
2089	O	$SO_2CH_2CH_3$	OH	$C(CH_3)_3$
2090	O	CH_3	OH	$C(CH_3)_3$
2091	O	CF_3	OH	$C(CH_3)_3$
2092	O	$OCHF_2$	OH	$C(CH_3)_3$
2093	S	F	OH	$C(CH_3)_3$
2094	S	Cl	OH	$C(CH_3)_3$
2095	S	Br	OH	$C(CH_3)_3$
2096	S	NO_2	OH	$C(CH_3)_3$
2097	S	SCH_3	OH	$C(CH_3)_3$
2098	S	SO_2CH_3	OH	$C(CH_3)_3$
2099	S	$SO_2CH_2CH_3$	OH	$C(CH_3)_3$
2100	S	CH_3	OH	$C(CH_3)_3$
2101	S	CF_3	OH	$C(CH_3)_3$

n	X	R^4	R^{10}	R^{11}
2102	S	$OCHF_2$	OH	$C(CH_3)_3$
2103	SO_2	F	OH	$C(CH_3)_3$
2104	SO_2	Cl	OH	$C(CH_3)_3$
2105	SO_2	Br	OH	$C(CH_3)_3$
2106	SO_2	NO_2	OH	$C(CH_3)_3$
2107	SO_2	SCH_3	OH	$C(CH_3)_3$
2108	SO_2	SO_2CH_3	OH	$C(CH_3)_3$
2109	SO_2	$SO_2CH_2CH_3$	OH	$C(CH_3)_3$
2110	SO_2	CH_3	OH	$C(CH_3)_3$
2111	SO_2	CF_3	OH	$C(CH_3)_3$
2112	SO_2	$OCHF_2$	OH	$C(CH_3)_3$
2113	bond	F	$OCOC_6H_5$	$CH(CH_3)_2$
2114	bond	Cl	$OCOC_6H_5$	$CH(CH_3)_2$
2115	bond	Br	$OCOC_6H_5$	$CH(CH_3)_2$
2116	bond	NO_2	$OCOC_6H_5$	$CH(CH_3)_2$
2117	bond	SCH_3	$OCOC_6H_5$	$CH(CH_3)_2$
2118	bond	SO_2CH_3	$OCOC_6H_5$	$CH(CH_3)_2$
2119	bond	$SO_2CH_2CH_3$	$OCOC_6H_5$	$CH(CH_3)_2$
2120	bond	CH_3	$OCOC_6H_5$	$CH(CH_3)_2$
2121	bond	CF_3	$OCOC_6H_5$	$CH(CH_3)_2$
2122	bond	$OCHF_2$	$OCOC_6H_5$	$CH(CH_3)_2$
2123	CH_2	F	$OCOC_6H_5$	$CH(CH_3)_2$
2124	CH_2	Cl	$OCOC_6H_5$	$CH(CH_3)_2$
2125	CH_2	Br	$OCOC_6H_5$	$CH(CH_3)_2$
2126	CH_2	NO_2	$OCOC_6H_5$	$CH(CH_3)_2$
2127	CH_2	SCH_3	$OCOC_6H_5$	$CH(CH_3)_2$
2128	CH_2	SO_2CH_3	$OCOC_6H_5$	$CH(CH_3)_2$
2129	CH_2	$SO_2CH_2CH_3$	$OCOC_6H_5$	$CH(CH_3)_2$
2130	CH_2	CH_3	$OCOC_6H_5$	$CH(CH_3)_2$
2131	CH_2	CF_3	$OCOC_6H_5$	$CH(CH_3)_2$
2132	CH_2	$OCHF_2$	$OCOC_6H_5$	$CH(CH_3)_2$
2133	O	F	$OCOC_6H_5$	$CH(CH_3)_2$
2134	O	Cl	$OCOC_6H_5$	$CH(CH_3)_2$
2135	O	Br	$OCOC_6H_5$	$CH(CH_3)_2$
2136	O	NO_2	$OCOC_6H_5$	$CH(CH_3)_2$
2137	O	SCH_3	$OCOC_6H_5$	$CH(CH_3)_2$
2138	O	SO_2CH_3	$OCOC_6H_5$	$CH(CH_3)_2$
2139	O	$SO_2CH_2CH_3$	$OCOC_6H_5$	$CH(CH_3)_2$
2140	O	CH_3	$OCOC_6H_5$	$CH(CH_3)_2$

n	X	R^4	R^{10}	R^{11}
2141	O	CF_3	$OCOC_6H_5$	$CH(CH_3)_2$
2142	O	$OCHF_2$	$OCOC_6H_5$	$CH(CH_3)_2$
2143	S	F	$OCOC_6H_5$	$CH(CH_3)_2$
2144	S	Cl	$OCOC_6H_5$	$CH(CH_3)_2$
2145	S	Br	$OCOC_6H_5$	$CH(CH_3)_2$
2146	S	NO_2	$OCOC_6H_5$	$CH(CH_3)_2$
2147	S	SCH_3	$OCOC_6H_5$	$CH(CH_3)_2$
2148	S	SO_2CH_3	$OCOC_6H_5$	$CH(CH_3)_2$
2149	S	$SO_2CH_2CH_3$	$OCOC_6H_5$	$CH(CH_3)_2$
2150	S	CH_3	$OCOC_6H_5$	$CH(CH_3)_2$
2151	S	CF_3	$OCOC_6H_5$	$CH(CH_3)_2$
2152	S	$OCHF_2$	$OCOC_6H_5$	$CH(CH_3)_2$
2153	SO_2	F	$OCOC_6H_5$	$CH(CH_3)_2$
2154	SO_2	Cl	$OCOC_6H_5$	$CH(CH_3)_2$
2155	SO_2	Br	$OCOC_6H_5$	$CH(CH_3)_2$
2156	SO_2	NO_2	$OCOC_6H_5$	$CH(CH_3)_2$
2157	SO_2	SCH_3	$OCOC_6H_5$	$CH(CH_3)_2$
2158	SO_2	SO_2CH_3	$OCOC_6H_5$	$CH(CH_3)_2$
2159	SO_2	$SO_2CH_2CH_3$	$OCOC_6H_5$	$CH(CH_3)_2$
2160	SO_2	CH_3	$OCOC_6H_5$	$CH(CH_3)_2$
2161	SO_2	CF_3	$OCOC_6H_5$	$CH(CH_3)_2$
2162	SO_2	$OCHF_2$	$OCOC_6H_5$	$CH(CH_3)_2$
2163	bond	F	$OCOC_6H_5$	$C(CH_3)_3$
2164	bond	Cl	$OCOC_6H_5$	$C(CH_3)_3$
2165	bond	Br	$OCOC_6H_5$	$C(CH_3)_3$
2166	bond	NO_2	$OCOC_6H_5$	$C(CH_3)_3$
2167	bond	SCH_3	$OCOC_6H_5$	$C(CH_3)_3$
2168	bond	SO_2CH_3	$OCOC_6H_5$	$C(CH_3)_3$
2169	bond	$SO_2CH_2CH_3$	$OCOC_6H_5$	$C(CH_3)_3$
2170	bond	CH_3	$OCOC_6H_5$	$C(CH_3)_3$
2171	bond	CF_3	$OCOC_6H_5$	$C(CH_3)_3$
2172	bond	$OCHF_2$	$OCOC_6H_5$	$C(CH_3)_3$
2173	CH_2	F	$OCOC_6H_5$	$C(CH_3)_3$
2174	CH_2	Cl	$OCOC_6H_5$	$C(CH_3)_3$
2175	CH_2	Br	$OCOC_6H_5$	$C(CH_3)_3$
2176	CH_2	NO_2	$OCOC_6H_5$	$C(CH_3)_3$
2177	CH_2	SCH_3	$OCOC_6H_5$	$C(CH_3)_3$
2178	CH_2	SO_2CH_3	$OCOC_6H_5$	$C(CH_3)_3$
2179	CH_2	$SO_2CH_2CH_3$	$OCOC_6H_5$	$C(CH_3)_3$

n	X	R^4	R^{10}	R^{11}
2180	CH_2	CH_3	$OCOC_6H_5$	$C(CH_3)_3$
2181	CH_2	CF_3	$OCOC_6H_5$	$C(CH_3)_3$
2182	CH_2	$OCHF_2$	$OCOC_6H_5$	$C(CH_3)_3$
2183	O	F	$OCOC_6H_5$	$C(CH_3)_3$
2184	O	Cl	$OCOC_6H_5$	$C(CH_3)_3$
2185	O	Br	$OCOC_6H_5$	$C(CH_3)_3$
2186	O	NO_2	$OCOC_6H_5$	$C(CH_3)_3$
2187	O	SCH_3	$OCOC_6H_5$	$C(CH_3)_3$
2188	O	SO_2CH_3	$OCOC_6H_5$	$C(CH_3)_3$
2189	O	$SO_2CH_2CH_3$	$OCOC_6H_5$	$C(CH_3)_3$
2190	O	CH_3	$OCOC_6H_5$	$C(CH_3)_3$
2191	O	CF_3	$OCOC_6H_5$	$C(CH_3)_3$
2192	O	$OCHF_2$	$OCOC_6H_5$	$C(CH_3)_3$
2193	S	F	$OCOC_6H_5$	$C(CH_3)_3$
2194	S	Cl	$OCOC_6H_5$	$C(CH_3)_3$
2195	S	Br	$OCOC_6H_5$	$C(CH_3)_3$
2196	S	NO_2	$OCOC_6H_5$	$C(CH_3)_3$
2197	S	SCH_3	$OCOC_6H_5$	$C(CH_3)_3$
2198	S	SO_2CH_3	$OCOC_6H_5$	$C(CH_3)_3$
2199	S	$SO_2CH_2CH_3$	$OCOC_6H_5$	$C(CH_3)_3$
2200	S	CH_3	$OCOC_6H_5$	$C(CH_3)_3$
2201	S	CF_3	$OCOC_6H_5$	$C(CH_3)_3$
2202	S	$OCHF_2$	$OCOC_6H_5$	$C(CH_3)_3$
2203	SO_2	F	$OCOC_6H_5$	$C(CH_3)_3$
2204	SO_2	Cl	$OCOC_6H_5$	$C(CH_3)_3$
2205	SO_2	Br	$OCOC_6H_5$	$C(CH_3)_3$
2206	SO_2	NO_2	$OCOC_6H_5$	$C(CH_3)_3$
2207	SO_2	SCH_3	$OCOC_6H_5$	$C(CH_3)_3$
2208	SO_2	SO_2CH_3	$OCOC_6H_5$	$C(CH_3)_3$
2209	SO_2	$SO_2CH_2CH_3$	$OCOC_6H_5$	$C(CH_3)_3$
2210	SO_2	CH_3	$OCOC_6H_5$	$C(CH_3)_3$
2211	SO_2	CF_3	$OCOC_6H_5$	$C(CH_3)_3$
2212	SO_2	$OCHF_2$	$OCOC_6H_5$	$C(CH_3)_3$
2213	bond	F	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2214	bond	Cl	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2215	bond	Br	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2216	bond	NO_2	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2217	bond	SCH_3	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2218	bond	SO_2CH_3	$OCOC(CH_3)_3$	$CH(CH_3)_2$

n	X	R^4	R^{10}	R^{11}
2219	bond	$SO_2CH_2CH_3$	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2220	bond	CH_3	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2221	bond	CF_3	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2222	bond	$OCHF_2$	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2223	CH_2	F	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2224	CH_2	Cl	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2225	CH_2	Br	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2226	CH_2	NO_2	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2227	CH_2	SCH_3	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2228	CH_2	SO_2CH_3	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2229	CH_2	$SO_2CH_2CH_3$	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2230	CH_2	CH_3	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2231	CH_2	CF_3	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2232	CH_2	$OCHF_2$	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2233	O	F	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2234	O	Cl	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2235	O	Br	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2236	O	NO_2	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2237	O	SCH_3	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2238	O	SO_2CH_3	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2239	O	$SO_2CH_2CH_3$	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2240	O	CH_3	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2241	O	CF_3	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2242	O	$OCHF_2$	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2243	S	F	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2244	S	Cl	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2245	S	Br	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2246	S	NO_2	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2247	S	SCH_3	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2248	S	SO_2CH_3	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2249	S	$SO_2CH_2CH_3$	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2250	S	CH_3	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2251	S	CF_3	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2252	S	$OCHF_2$	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2253	SO_2	F	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2254	SO_2	Cl	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2255	SO_2	Br	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2256	SO_2	NO_2	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2257	SO_2	SCH_3	$OCOC(CH_3)_3$	$CH(CH_3)_2$

n	X	R^4	R^{10}	R^{11}
2258	SO_2	SO_2CH_3	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2259	SO_2	$SO_2CH_2CH_3$	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2260	SO_2	CH_3	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2261	SO_2	CF_3	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2262	SO_2	$OCHF_2$	$OCOC(CH_3)_3$	$CH(CH_3)_2$
2263	bond	F	$OCOC(CH_3)_3$	$C(CH_3)_3$
2264	bond	Cl	$OCOC(CH_3)_3$	$C(CH_3)_3$
2265	bond	Br	$OCOC(CH_3)_3$	$C(CH_3)_3$
2266	bond	NO_2	$OCOC(CH_3)_3$	$C(CH_3)_3$
2267	bond	SCH_3	$OCOC(CH_3)_3$	$C(CH_3)_3$
2268	bond	SO_2CH_3	$OCOC(CH_3)_3$	$C(CH_3)_3$
2269	bond	$SO_2CH_2CH_3$	$OCOC(CH_3)_3$	$C(CH_3)_3$
2270	bond	CH_3	$OCOC(CH_3)_3$	$C(CH_3)_3$
2271	bond	CF_3	$OCOC(CH_3)_3$	$C(CH_3)_3$
2272	bond	$OCHF_2$	$OCOC(CH_3)_3$	$C(CH_3)_3$
2273	CH_2	F	$OCOC(CH_3)_3$	$C(CH_3)_3$
2274	CH_2	Cl	$OCOC(CH_3)_3$	$C(CH_3)_3$
2275	CH_2	Br	$OCOC(CH_3)_3$	$C(CH_3)_3$
2276	CH_2	NO_2	$OCOC(CH_3)_3$	$C(CH_3)_3$
2277	CH_2	SCH_3	$OCOC(CH_3)_3$	$C(CH_3)_3$
2278	CH_2	SO_2CH_3	$OCOC(CH_3)_3$	$C(CH_3)_3$
2279	CH_2	$SO_2CH_2CH_3$	$OCOC(CH_3)_3$	$C(CH_3)_3$
2280	CH_2	CH_3	$OCOC(CH_3)_3$	$C(CH_3)_3$
2281	CH_2	CF_3	$OCOC(CH_3)_3$	$C(CH_3)_3$
2282	CH_2	$OCHF_2$	$OCOC(CH_3)_3$	$C(CH_3)_3$
2283	O	F	$OCOC(CH_3)_3$	$C(CH_3)_3$
2284	O	Cl	$OCOC(CH_3)_3$	$C(CH_3)_3$
2285	O	Br	$OCOC(CH_3)_3$	$C(CH_3)_3$
2286	O	NO_2	$OCOC(CH_3)_3$	$C(CH_3)_3$
2287	O	SCH_3	$OCOC(CH_3)_3$	$C(CH_3)_3$
2288	O	SO_2CH_3	$OCOC(CH_3)_3$	$C(CH_3)_3$
2289	O	$SO_2CH_2CH_3$	$OCOC(CH_3)_3$	$C(CH_3)_3$
2290	O	CH_3	$OCOC(CH_3)_3$	$C(CH_3)_3$
2291	O	CF_3	$OCOC(CH_3)_3$	$C(CH_3)_3$
2292	O	$OCHF_2$	$OCOC(CH_3)_3$	$C(CH_3)_3$
2293	S	F	$OCOC(CH_3)_3$	$C(CH_3)_3$
2294	S	Cl	$OCOC(CH_3)_3$	$C(CH_3)_3$
2295	S	Br	$OCOC(CH_3)_3$	$C(CH_3)_3$
2296	S	NO_2	$OCOC(CH_3)_3$	$C(CH_3)_3$

n	X	R^4	R^{10}	R^{11}
2297	S	SCH_3	$OCOC(CH_3)_3$	$C(CH_3)_3$
2298	S	SO_2CH_3	$OCOC(CH_3)_3$	$C(CH_3)_3$
2299	S	$SO_2CH_2CH_3$	$OCOC(CH_3)_3$	$C(CH_3)_3$
2300	S	CH_3	$OCOC(CH_3)_3$	$C(CH_3)_3$
2301	S	CF_3	$OCOC(CH_3)_3$	$C(CH_3)_3$
2302	S	$OCHF_2$	$OCOC(CH_3)_3$	$C(CH_3)_3$
2303	SO_2	F	$OCOC(CH_3)_3$	$C(CH_3)_3$
2304	SO_2	Cl	$OCOC(CH_3)_3$	$C(CH_3)_3$
2305	SO_2	Br	$OCOC(CH_3)_3$	$C(CH_3)_3$
2306	SO_2	NO_2	$OCOC(CH_3)_3$	$C(CH_3)_3$
2307	SO_2	SCH_3	$OCOC(CH_3)_3$	$C(CH_3)_3$
2308	SO_2	SO_2CH_3	$OCOC(CH_3)_3$	$C(CH_3)_3$
2309	SO_2	$SO_2CH_2CH_3$	$OCOC(CH_3)_3$	$C(CH_3)_3$
2310	SO_2	CH_3	$OCOC(CH_3)_3$	$C(CH_3)_3$
2311	SO_2	CF_3	$OCOC(CH_3)_3$	$C(CH_3)_3$
2312	SO_2	$OCHF_2$	$OCOC(CH_3)_3$	$C(CH_3)_3$
2313	bond	F	$OCOSCH_3$	$CH(CH_3)_2$
2314	bond	Cl	$OCOSCH_3$	$CH(CH_3)_2$
2315	bond	Br	$OCOSCH_3$	$CH(CH_3)_2$
2316	bond	NO_2	$OCOSCH_3$	$CH(CH_3)_2$
2317	bond	SCH_3	$OCOSCH_3$	$CH(CH_3)_2$
2318	bond	SO_2CH_3	$OCOSCH_3$	$CH(CH_3)_2$
2319	bond	$SO_2CH_2CH_3$	$OCOSCH_3$	$CH(CH_3)_2$
2320	bond	CH_3	$OCOSCH_3$	$CH(CH_3)_2$
2321	bond	CF_3	$OCOSCH_3$	$CH(CH_3)_2$
2322	bond	$OCHF_2$	$OCOSCH_3$	$CH(CH_3)_2$
2323	CH_2	F	$OCOSCH_3$	$CH(CH_3)_2$
2324	CH_2	Cl	$OCOSCH_3$	$CH(CH_3)_2$
2325	CH_2	Br	$OCOSCH_3$	$CH(CH_3)_2$
2326	CH_2	NO_2	$OCOSCH_3$	$CH(CH_3)_2$
2327	CH_2	SCH_3	$OCOSCH_3$	$CH(CH_3)_2$
2328	CH_2	SO_2CH_3	$OCOSCH_3$	$CH(CH_3)_2$
2329	CH_2	$SO_2CH_2CH_3$	$OCOSCH_3$	$CH(CH_3)_2$
2330	CH_2	CH_3	$OCOSCH_3$	$CH(CH_3)_2$
2331	CH_2	CF_3	$OCOSCH_3$	$CH(CH_3)_2$
2332	CH_2	$OCHF_2$	$OCOSCH_3$	$CH(CH_3)_2$
2333	O	F	$OCOSCH_3$	$CH(CH_3)_2$
2334	O	Cl	$OCOSCH_3$	$CH(CH_3)_2$
2335	O	Br	$OCOSCH_3$	$CH(CH_3)_2$

n	X	R^4	R^{10}	R^{11}
2336	O	NO_2	$OCOSCH_3$	$CH(CH_3)_2$
2337	O	SCH_3	$OCOSCH_3$	$CH(CH_3)_2$
2338	O	SO_2CH_3	$OCOSCH_3$	$CH(CH_3)_2$
2339	O	$SO_2CH_2CH_3$	$OCOSCH_3$	$CH(CH_3)_2$
2340	O	CH_3	$OCOSCH_3$	$CH(CH_3)_2$
2341	O	CF_3	$OCOSCH_3$	$CH(CH_3)_2$
2342	O	$OCHF_2$	$OCOSCH_3$	$CH(CH_3)_2$
2343	S	F	$OCOSCH_3$	$CH(CH_3)_2$
2344	S	Cl	$OCOSCH_3$	$CH(CH_3)_2$
2345	S	Br	$OCOSCH_3$	$CH(CH_3)_2$
2346	S	NO_2	$OCOSCH_3$	$CH(CH_3)_2$
2347	S	SCH_3	$OCOSCH_3$	$CH(CH_3)_2$
2348	S	SO_2CH_3	$OCOSCH_3$	$CH(CH_3)_2$
2349	S	$SO_2CH_2CH_3$	$OCOSCH_3$	$CH(CH_3)_2$
2350	S	CH_3	$OCOSCH_3$	$CH(CH_3)_2$
2351	S	CF_3	$OCOSCH_3$	$CH(CH_3)_2$
2352	S	$OCHF_2$	$OCOSCH_3$	$CH(CH_3)_2$
2353	SO_2	F	$OCOSCH_3$	$CH(CH_3)_2$
2354	SO_2	Cl	$OCOSCH_3$	$CH(CH_3)_2$
2355	SO_2	Br	$OCOSCH_3$	$CH(CH_3)_2$
2356	SO_2	NO_2	$OCOSCH_3$	$CH(CH_3)_2$
2357	SO_2	SCH_3	$OCOSCH_3$	$CH(CH_3)_2$
2358	SO_2	SO_2CH_3	$OCOSCH_3$	$CH(CH_3)_2$
2359	SO_2	$SO_2CH_2CH_3$	$OCOSCH_3$	$CH(CH_3)_2$
2360	SO_2	CH_3	$OCOSCH_3$	$CH(CH_3)_2$
2361	SO_2	CF_3	$OCOSCH_3$	$CH(CH_3)_2$
2362	SO_2	$OCHF_2$	$OCOSCH_3$	$CH(CH_3)_2$
2363	bond	F	$OCOSCH_3$	$C(CH_3)_3$
2364	bond	Cl	$OCOSCH_3$	$C(CH_3)_3$
2365	bond	Br	$OCOSCH_3$	$C(CH_3)_3$
2366	bond	NO_2	$OCOSCH_3$	$C(CH_3)_3$
2367	bond	SCH_3	$OCOSCH_3$	$C(CH_3)_3$
2368	bond	SO_2CH_3	$OCOSCH_3$	$C(CH_3)_3$
2369	bond	$SO_2CH_2CH_3$	$OCOSCH_3$	$C(CH_3)_3$
2370	bond	CH_3	$OCOSCH_3$	$C(CH_3)_3$
2371	bond	CF_3	$OCOSCH_3$	$C(CH_3)_3$
2372	bond	$OCHF_2$	$OCOSCH_3$	$C(CH_3)_3$
2373	CH_2	F	$OCOSCH_3$	$C(CH_3)_3$
2374	CH_2	Cl	$OCOSCH_3$	$C(CH_3)_3$

n	X	R^4	R^{10}	R^{11}
2375	CH_2	Br	$OCOSCH_3$	$C(CH_3)_3$
2376	CH_2	NO_2	$OCOSCH_3$	$C(CH_3)_3$
2377	CH_2	SCH_3	$OCOSCH_3$	$C(CH_3)_3$
2378	CH_2	SO_2CH_3	$OCOSCH_3$	$C(CH_3)_3$
2379	CH_2	$SO_2CH_2CH_3$	$OCOSCH_3$	$C(CH_3)_3$
2380	CH_2	CH_3	$OCOSCH_3$	$C(CH_3)_3$
2381	CH_2	CF_3	$OCOSCH_3$	$C(CH_3)_3$
2382	CH_2	$OCHF_2$	$OCOSCH_3$	$C(CH_3)_3$
2383	O	F	$OCOSCH_3$	$C(CH_3)_3$
2384	O	Cl	$OCOSCH_3$	$C(CH_3)_3$
2385	O	Br	$OCOSCH_3$	$C(CH_3)_3$
2386	O	NO_2	$OCOSCH_3$	$C(CH_3)_3$
2387	O	SCH_3	$OCOSCH_3$	$C(CH_3)_3$
2388	O	SO_2CH_3	$OCOSCH_3$	$C(CH_3)_3$
2389	O	$SO_2CH_2CH_3$	$OCOSCH_3$	$C(CH_3)_3$
2390	O	CH_3	$OCOSCH_3$	$C(CH_3)_3$
2391	O	CF_3	$OCOSCH_3$	$C(CH_3)_3$
2392	O	$OCHF_2$	$OCOSCH_3$	$C(CH_3)_3$
2393	S	F	$OCOSCH_3$	$C(CH_3)_3$
2394	S	Cl	$OCOSCH_3$	$C(CH_3)_3$
2395	S	Br	$OCOSCH_3$	$C(CH_3)_3$
2396	S	NO_2	$OCOSCH_3$	$C(CH_3)_3$
2397	S	SCH_3	$OCOSCH_3$	$C(CH_3)_3$
2398	S	SO_2CH_3	$OCOSCH_3$	$C(CH_3)_3$
2399	S	$SO_2CH_2CH_3$	$OCOSCH_3$	$C(CH_3)_3$
2400	S	CH_3	$OCOSCH_3$	$C(CH_3)_3$
2401	S	CF_3	$OCOSCH_3$	$C(CH_3)_3$
2402	S	$OCHF_2$	$OCOSCH_3$	$C(CH_3)_3$
2403	SO_2	F	$OCOSCH_3$	$C(CH_3)_3$
2404	SO_2	Cl	$OCOSCH_3$	$C(CH_3)_3$
2405	SO_2	Br	$OCOSCH_3$	$C(CH_3)_3$
2406	SO_2	NO_2	$OCOSCH_3$	$C(CH_3)_3$
2407	SO_2	SCH_3	$OCOSCH_3$	$C(CH_3)_3$
2408	SO_2	SO_2CH_3	$OCOSCH_3$	$C(CH_3)_3$
2409	SO_2	$SO_2CH_2CH_3$	$OCOSCH_3$	$C(CH_3)_3$
2410	SO_2	CH_3	$OCOSCH_3$	$C(CH_3)_3$
2411	SO_2	CF_3	$OCOSCH_3$	$C(CH_3)_3$
2412	SO_2	$OCHF_2$	$OCOSCH_3$	$C(CH_3)_3$
2413	bond	F	OCH_3	$CH(CH_3)_2$

n	X	R^4	R^{10}	R^{11}
2414	bond	Cl	OCH_3	$CH(CH_3)_2$
2415	bond	Br	OCH_3	$CH(CH_3)_2$
2416	bond	NO_2	OCH_3	$CH(CH_3)_2$
2417	bond	SCH_3	OCH_3	$CH(CH_3)_2$
2418	bond	SO_2CH_3	OCH_3	$CH(CH_3)_2$
2419	bond	$SO_2CH_2CH_3$	OCH_3	$CH(CH_3)_2$
2420	bond	CH_3	OCH_3	$CH(CH_3)_2$
2421	bond	CF_3	OCH_3	$CH(CH_3)_2$
2422	bond	$OCHF_2$	OCH_3	$CH(CH_3)_2$
2423	CH_2	F	OCH_3	$CH(CH_3)_2$
2424	CH_2	Cl	OCH_3	$CH(CH_3)_2$
2425	CH_2	Br	OCH_3	$CH(CH_3)_2$
2426	CH_2	NO_2	OCH_3	$CH(CH_3)_2$
2427	CH_2	SCH_3	OCH_3	$CH(CH_3)_2$
2428	CH_2	SO_2CH_3	OCH_3	$CH(CH_3)_2$
2429	CH_2	$SO_2CH_2CH_3$	OCH_3	$CH(CH_3)_2$
2430	CH_2	CH_3	OCH_3	$CH(CH_3)_2$
2431	CH_2	CF_3	OCH_3	$CH(CH_3)_2$
2432	CH_2	$OCHF_2$	OCH_3	$CH(CH_3)_2$
2433	O	F	OCH_3	$CH(CH_3)_2$
2434	O	Cl	OCH_3	$CH(CH_3)_2$
2435	O	Br	OCH_3	$CH(CH_3)_2$
2436	O	NO_2	OCH_3	$CH(CH_3)_2$
2437	O	SCH_3	OCH_3	$CH(CH_3)_2$
2438	O	SO_2CH_3	OCH_3	$CH(CH_3)_2$
2439	O	$SO_2CH_2CH_3$	OCH_3	$CH(CH_3)_2$
2440	O	CH_3	OCH_3	$CH(CH_3)_2$
2441	O	CF_3	OCH_3	$CH(CH_3)_2$
2442	O	$OCHF_2$	OCH_3	$CH(CH_3)_2$
2443	S	F	OCH_3	$CH(CH_3)_2$
2444	S	Cl	OCH_3	$CH(CH_3)_2$
2445	S	Br	OCH_3	$CH(CH_3)_2$
2446	S	NO_2	OCH_3	$CH(CH_3)_2$
2447	S	SCH_3	OCH_3	$CH(CH_3)_2$
2448	S	SO_2CH_3	OCH_3	$CH(CH_3)_2$
2449	S	$SO_2CH_2CH_3$	OCH_3	$CH(CH_3)_2$
2450	S	CH_3	OCH_3	$CH(CH_3)_2$
2451	S	CF_3	OCH_3	$CH(CH_3)_2$
2452	S	$OCHF_2$	OCH_3	$CH(CH_3)_2$

n	X	R^4	R^{10}	R^{11}
2453	SO_2	F	OCH_3	$CH(CH_3)_2$
2454	SO_2	Cl	OCH_3	$CH(CH_3)_2$
2455	SO_2	Br	OCH_3	$CH(CH_3)_2$
2456	SO_2	NO_2	OCH_3	$CH(CH_3)_2$
2457	SO_2	SCH_3	OCH_3	$CH(CH_3)_2$
2458	SO_2	SO_2CH_3	OCH_3	$CH(CH_3)_2$
2459	SO_2	$SO_2CH_2CH_3$	OCH_3	$CH(CH_3)_2$
2460	SO_2	CH_3	OCH_3	$CH(CH_3)_2$
2461	SO_2	CF_3	OCH_3	$CH(CH_3)_2$
2462	SO_2	$OCHF_2$	OCH_3	$CH(CH_3)_2$
2463	bond	F	OCH_3	$C(CH_3)_3$
2464	bond	Cl	OCH_3	$C(CH_3)_3$
2465	bond	Br	OCH_3	$C(CH_3)_3$
2466	bond	NO_2	OCH_3	$C(CH_3)_3$
2467	bond	SCH_3	OCH_3	$C(CH_3)_3$
2468	bond	SO_2CH_3	OCH_3	$C(CH_3)_3$
2469	bond	$SO_2CH_2CH_3$	OCH_3	$C(CH_3)_3$
2470	bond	CH_3	OCH_3	$C(CH_3)_3$
2471	bond	CF_3	OCH_3	$C(CH_3)_3$
2472	bond	$OCHF_2$	OCH_3	$C(CH_3)_3$
2473	CH_2	F	OCH_3	$C(CH_3)_3$
2474	CH_2	Cl	OCH_3	$C(CH_3)_3$
2475	CH_2	Br	OCH_3	$C(CH_3)_3$
2476	CH_2	NO_2	OCH_3	$C(CH_3)_3$
2477	CH_2	SCH_3	OCH_3	$C(CH_3)_3$
2478	CH_2	SO_2CH_3	OCH_3	$C(CH_3)_3$
2479	CH_2	$SO_2CH_2CH_3$	OCH_3	$C(CH_3)_3$
2480	CH_2	CH_3	OCH_3	$C(CH_3)_3$
2481	CH_2	CF_3	OCH_3	$C(CH_3)_3$
2482	CH_2	$OCHF_2$	OCH_3	$C(CH_3)_3$
2483	O	F	OCH_3	$C(CH_3)_3$
2484	O	Cl	OCH_3	$C(CH_3)_3$
2485	O	Br	OCH_3	$C(CH_3)_3$
2486	O	NO_2	OCH_3	$C(CH_3)_3$
2487	O	SCH_3	OCH_3	$C(CH_3)_3$
2488	O	SO_2CH_3	OCH_3	$C(CH_3)_3$
2489	O	$SO_2CH_2CH_3$	OCH_3	$C(CH_3)_3$
2490	O	CH_3	OCH_3	$C(CH_3)_3$
2491	O	CF_3	OCH_3	$C(CH_3)_3$

n	X	R^4	R^{10}	R^{11}
2492	O	$OCHF_2$	OCH_3	$C(CH_3)_3$
2493	S	F	OCH_3	$C(CH_3)_3$
2494	S	Cl	OCH_3	$C(CH_3)_3$
2495	S	Br	OCH_3	$C(CH_3)_3$
2496	S	NO_2	OCH_3	$C(CH_3)_3$
2497	S	SCH_3	OCH_3	$C(CH_3)_3$
2498	S	SO_2CH_3	OCH_3	$C(CH_3)_3$
2499	S	$SO_2CH_2CH_3$	OCH_3	$C(CH_3)_3$
2500	S	CH_3	OCH_3	$C(CH_3)_3$
2501	S	CF_3	OCH_3	$C(CH_3)_3$
2502	S	$OCHF_2$	OCH_3	$C(CH_3)_3$
2503	SO_2	F	OCH_3	$C(CH_3)_3$
2504	SO_2	Cl	OCH_3	$C(CH_3)_3$
2505	SO_2	Br	OCH_3	$C(CH_3)_3$
2506	SO_2	NO_2	OCH_3	$C(CH_3)_3$
2507	SO_2	SCH_3	OCH_3	$C(CH_3)_3$
2508	SO_2	SO_2CH_3	OCH_3	$C(CH_3)_3$
2509	SO_2	$SO_2CH_2CH_3$	OCH_3	$C(CH_3)_3$
2510	SO_2	CH_3	OCH_3	$C(CH_3)_3$
2511	SO_2	CF_3	OCH_3	$C(CH_3)_3$
2512	SO_2	$OCHF_2$	OCH_3	$C(CH_3)_3$
2513	bond	F	$OCH(CH_3)_2$	$CH(CH_3)_2$
2514	bond	Cl	$OCH(CH_3)_2$	$CH(CH_3)_2$
2515	bond	Br	$OCH(CH_3)_2$	$CH(CH_3)_2$
2516	bond	NO_2	$OCH(CH_3)_2$	$CH(CH_3)_2$
2517	bond	SCH_3	$OCH(CH_3)_2$	$CH(CH_3)_2$
2518	bond	SO_2CH_3	$OCH(CH_3)_2$	$CH(CH_3)_2$
2519	bond	$SO_2CH_2CH_3$	$OCH(CH_3)_2$	$CH(CH_3)_2$
2520	bond	CH_3	$OCH(CH_3)_2$	$CH(CH_3)_2$
2521	bond	CF_3	$OCH(CH_3)_2$	$CH(CH_3)_2$
2522	bond	$OCHF_2$	$OCH(CH_3)_2$	$CH(CH_3)_2$
2523	CH_2	F	$OCH(CH_3)_2$	$CH(CH_3)_2$
2524	CH_2	Cl	$OCH(CH_3)_2$	$CH(CH_3)_2$
2525	CH_2	Br	$OCH(CH_3)_2$	$CH(CH_3)_2$
2526	CH_2	NO_2	$OCH(CH_3)_2$	$CH(CH_3)_2$
2527	CH_2	SCH_3	$OCH(CH_3)_2$	$CH(CH_3)_2$
2528	CH_2	SO_2CH_3	$OCH(CH_3)_2$	$CH(CH_3)_2$
2529	CH_2	$SO_2CH_2CH_3$	$OCH(CH_3)_2$	$CH(CH_3)_2$
2530	CH_2	CH_3	$OCH(CH_3)_2$	$CH(CH_3)_2$

n	X	R^4	R^{10}	R^{11}
2531	CH_2	CF_3	$OCH(CH_3)_2$	$CH(CH_3)_2$
2532	CH_2	$OCHF_2$	$OCH(CH_3)_2$	$CH(CH_3)_2$
2533	O	F	$OCH(CH_3)_2$	$CH(CH_3)_2$
2534	O	Cl	$OCH(CH_3)_2$	$CH(CH_3)_2$
2535	O	Br	$OCH(CH_3)_2$	$CH(CH_3)_2$
2536	O	NO_2	$OCH(CH_3)_2$	$CH(CH_3)_2$
2537	O	SCH_3	$OCH(CH_3)_2$	$CH(CH_3)_2$
2538	O	SO_2CH_3	$OCH(CH_3)_2$	$CH(CH_3)_2$
2539	O	$SO_2CH_2CH_3$	$OCH(CH_3)_2$	$CH(CH_3)_2$
2540	O	CH_3	$OCH(CH_3)_2$	$CH(CH_3)_2$
2541	O	CF_3	$OCH(CH_3)_2$	$CH(CH_3)_2$
2542	O	$OCHF_2$	$OCH(CH_3)_2$	$CH(CH_3)_2$
2543	S	F	$OCH(CH_3)_2$	$CH(CH_3)_2$
2544	S	Cl	$OCH(CH_3)_2$	$CH(CH_3)_2$
2545	S	Br	$OCH(CH_3)_2$	$CH(CH_3)_2$
2546	S	NO_2	$OCH(CH_3)_2$	$CH(CH_3)_2$
2547	S	SCH_3	$OCH(CH_3)_2$	$CH(CH_3)_2$
2548	S	SO_2CH_3	$OCH(CH_3)_2$	$CH(CH_3)_2$
2549	S	$SO_2CH_2CH_3$	$OCH(CH_3)_2$	$CH(CH_3)_2$
2550	S	CH_3	$OCH(CH_3)_2$	$CH(CH_3)_2$
2551	S	CF_3	$OCH(CH_3)_2$	$CH(CH_3)_2$
2552	S	$OCHF_2$	$OCH(CH_3)_2$	$CH(CH_3)_2$
2553	SO_2	F	$OCH(CH_3)_2$	$CH(CH_3)_2$
2554	SO_2	Cl	$OCH(CH_3)_2$	$CH(CH_3)_2$
2555	SO_2	Br	$OCH(CH_3)_2$	$CH(CH_3)_2$
2556	SO_2	NO_2	$OCH(CH_3)_2$	$CH(CH_3)_2$
2557	SO_2	SCH_3	$OCH(CH_3)_2$	$CH(CH_3)_2$
2558	SO_2	SO_2CH_3	$OCH(CH_3)_2$	$CH(CH_3)_2$
2559	SO_2	$SO_2CH_2CH_3$	$OCH(CH_3)_2$	$CH(CH_3)_2$
2560	SO_2	CH_3	$OCH(CH_3)_2$	$CH(CH_3)_2$
2561	SO_2	CF_3	$OCH(CH_3)_2$	$CH(CH_3)_2$
2562	SO_2	$OCHF_2$	$OCH(CH_3)_2$	$CH(CH_3)_2$
2563	bond	F	$OCH(CH_3)_2$	$C(CH_3)_3$
2564	bond	Cl	$OCH(CH_3)_2$	$C(CH_3)_3$
2565	bond	Br	$OCH(CH_3)_2$	$C(CH_3)_3$
2566	bond	NO_2	$OCH(CH_3)_2$	$C(CH_3)_3$
2567	bond	SCH_3	$OCH(CH_3)_2$	$C(CH_3)_3$
2568	bond	SO_2CH_3	$OCH(CH_3)_2$	$C(CH_3)_3$
2569	bond	$SO_2CH_2CH_3$	$OCH(CH_3)_2$	$C(CH_3)_3$

n	X	R^4	R^{10}	R^{11}
2570	bond	CH_3	$OCH(CH_3)_2$	$C(CH_3)_3$
2571	bond	CF_3	$OCH(CH_3)_2$	$C(CH_3)_3$
2572	bond	$OCHF_2$	$OCH(CH_3)_2$	$C(CH_3)_3$
2573	CH_2	F	$OCH(CH_3)_2$	$C(CH_3)_3$
2574	CH_2	Cl	$OCH(CH_3)_2$	$C(CH_3)_3$
2575	CH_2	Br	$OCH(CH_3)_2$	$C(CH_3)_3$
2576	CH_2	NO_2	$OCH(CH_3)_2$	$C(CH_3)_3$
2577	CH_2	SCH_3	$OCH(CH_3)_2$	$C(CH_3)_3$
2578	CH_2	SO_2CH_3	$OCH(CH_3)_2$	$C(CH_3)_3$
2579	CH_2	$SO_2CH_2CH_3$	$OCH(CH_3)_2$	$C(CH_3)_3$
2580	CH_2	CH_3	$OCH(CH_3)_2$	$C(CH_3)_3$
2581	CH_2	CF_3	$OCH(CH_3)_2$	$C(CH_3)_3$
2582	CH_2	$OCHF_2$	$OCH(CH_3)_2$	$C(CH_3)_3$
2583	O	F	$OCH(CH_3)_2$	$C(CH_3)_3$
2584	O	Cl	$OCH(CH_3)_2$	$C(CH_3)_3$
2585	O	Br	$OCH(CH_3)_2$	$C(CH_3)_3$
2586	O	NO_2	$OCH(CH_3)_2$	$C(CH_3)_3$
2587	O	SCH_3	$OCH(CH_3)_2$	$C(CH_3)_3$
2588	O	SO_2CH_3	$OCH(CH_3)_2$	$C(CH_3)_3$
2589	O	$SO_2CH_2CH_3$	$OCH(CH_3)_2$	$C(CH_3)_3$
2590	O	CH_3	$OCH(CH_3)_2$	$C(CH_3)_3$
2591	O	CF_3	$OCH(CH_3)_2$	$C(CH_3)_3$
2592	O	$OCHF_2$	$OCH(CH_3)_2$	$C(CH_3)_3$
2593	S	F	$OCH(CH_3)_2$	$C(CH_3)_3$
2594	S	Cl	$OCH(CH_3)_2$	$C(CH_3)_3$
2595	S	Br	$OCH(CH_3)_2$	$C(CH_3)_3$
2596	S	NO_2	$OCH(CH_3)_2$	$C(CH_3)_3$
2597	S	SCH_3	$OCH(CH_3)_2$	$C(CH_3)_3$
2598	S	SO_2CH_3	$OCH(CH_3)_2$	$C(CH_3)_3$
2599	S	$SO_2CH_2CH_3$	$OCH(CH_3)_2$	$C(CH_3)_3$
2600	S	CH_3	$OCH(CH_3)_2$	$C(CH_3)_3$
2601	S	CF_3	$OCH(CH_3)_2$	$C(CH_3)_3$
2602	S	$OCHF_2$	$OCH(CH_3)_2$	$C(CH_3)_3$
2603	SO_2	F	$OCH(CH_3)_2$	$C(CH_3)_3$
2604	SO_2	Cl	$OCH(CH_3)_2$	$C(CH_3)_3$
2605	SO_2	Br	$OCH(CH_3)_2$	$C(CH_3)_3$
2606	SO_2	NO_2	$OCH(CH_3)_2$	$C(CH_3)_3$
2607	SO_2	SCH_3	$OCH(CH_3)_2$	$C(CH_3)_3$
2608	SO_2	SO_2CH_3	$OCH(CH_3)_2$	$C(CH_3)_3$

n	X	R^4	R^{10}	R^{11}
2609	SO_2	$SO_2CH_2CH_3$	$OCH(CH_3)_2$	$C(CH_3)_3$
2610	SO_2	CH_3	$OCH(CH_3)_2$	$C(CH_3)_3$
2611	SO_2	CF_3	$OCH(CH_3)_2$	$C(CH_3)_3$
2612	SO_2	$OCHF_2$	$OCH(CH_3)_2$	$C(CH_3)_3$
2613	bond	F	$OCH_2C_6H_5$	$CH(CH_3)_2$
2614	bond	Cl	$OCH_2C_6H_5$	$CH(CH_3)_2$
2615	bond	Br	$OCH_2C_6H_5$	$CH(CH_3)_2$
2616	bond	NO_2	$OCH_2C_6H_5$	$CH(CH_3)_2$
2617	bond	SCH_3	$OCH_2C_6H_5$	$CH(CH_3)_2$
2618	bond	SO_2CH_3	$OCH_2C_6H_5$	$CH(CH_3)_2$
2619	bond	$SO_2CH_2CH_3$	$OCH_2C_6H_5$	$CH(CH_3)_2$
2620	bond	CH_3	$OCH_2C_6H_5$	$CH(CH_3)_2$
2621	bond	CF_3	$OCH_2C_6H_5$	$CH(CH_3)_2$
2622	bond	$OCHF_2$	$OCH_2C_6H_5$	$CH(CH_3)_2$
2623	CH_2	F	$OCH_2C_6H_5$	$CH(CH_3)_2$
2624	CH_2	Cl	$OCH_2C_6H_5$	$CH(CH_3)_2$
2625	CH_2	Br	$OCH_2C_6H_5$	$CH(CH_3)_2$
2626	CH_2	NO_2	$OCH_2C_6H_5$	$CH(CH_3)_2$
2627	CH_2	SCH_3	$OCH_2C_6H_5$	$CH(CH_3)_2$
2628	CH_2	SO_2CH_3	$OCH_2C_6H_5$	$CH(CH_3)_2$
2629	CH_2	$SO_2CH_2CH_3$	$OCH_2C_6H_5$	$CH(CH_3)_2$
2630	CH_2	CH_3	$OCH_2C_6H_5$	$CH(CH_3)_2$
2631	CH_2	CF_3	$OCH_2C_6H_5$	$CH(CH_3)_2$
2632	CH_2	$OCHF_2$	$OCH_2C_6H_5$	$CH(CH_3)_2$
2633	O	F	$OCH_2C_6H_5$	$CH(CH_3)_2$
2634	O	Cl	$OCH_2C_6H_5$	$CH(CH_3)_2$
2635	O	Br	$OCH_2C_6H_5$	$CH(CH_3)_2$
2636	O	NO_2	$OCH_2C_6H_5$	$CH(CH_3)_2$
2637	O	SCH_3	$OCH_2C_6H_5$	$CH(CH_3)_2$
2638	O	SO_2CH_3	$OCH_2C_6H_5$	$CH(CH_3)_2$
2639	O	$SO_2CH_2CH_3$	$OCH_2C_6H_5$	$CH(CH_3)_2$
2640	O	CH_3	$OCH_2C_6H_5$	$CH(CH_3)_2$
2641	O	CF_3	$OCH_2C_6H_5$	$CH(CH_3)_2$
2642	O	$OCHF_2$	$OCH_2C_6H_5$	$CH(CH_3)_2$
2643	S	F	$OCH_2C_6H_5$	$CH(CH_3)_2$
2644	S	Cl	$OCH_2C_6H_5$	$CH(CH_3)_2$
2645	S	Br	$OCH_2C_6H_5$	$CH(CH_3)_2$
2646	S	NO_2	$OCH_2C_6H_5$	$CH(CH_3)_2$
2647	S	SCH_3	$OCH_2C_6H_5$	$CH(CH_3)_2$

n	X	R^4	R^{10}	R^{11}
2648	S	SO_2CH_3	$OCH_2C_6H_5$	$CH(CH_3)_2$
2649	S	$SO_2CH_2CH_3$	$OCH_2C_6H_5$	$CH(CH_3)_2$
2650	S	CH_3	$OCH_2C_6H_5$	$CH(CH_3)_2$
2651	S	CF_3	$OCH_2C_6H_5$	$CH(CH_3)_2$
2652	S	$OCHF_2$	$OCH_2C_6H_5$	$CH(CH_3)_2$
2653	SO_2	F	$OCH_2C_6H_5$	$CH(CH_3)_2$
2654	SO_2	Cl	$OCH_2C_6H_5$	$CH(CH_3)_2$
2655	SO_2	Br	$OCH_2C_6H_5$	$CH(CH_3)_2$
2656	SO_2	NO_2	$OCH_2C_6H_5$	$CH(CH_3)_2$
2657	SO_2	SCH_3	$OCH_2C_6H_5$	$CH(CH_3)_2$
2658	SO_2	SO_2CH_3	$OCH_2C_6H_5$	$CH(CH_3)_2$
2659	SO_2	$SO_2CH_2CH_3$	$OCH_2C_6H_5$	$CH(CH_3)_2$
2660	SO_2	CH_3	$OCH_2C_6H_5$	$CH(CH_3)_2$
2661	SO_2	CF_3	$OCH_2C_6H_5$	$CH(CH_3)_2$
2662	SO_2	$OCHF_2$	$OCH_2C_6H_5$	$CH(CH_3)_2$
2663	bond	F	$OCH_2C_6H_5$	$C(CH_3)_3$
2664	bond	Cl	$OCH_2C_6H_5$	$C(CH_3)_3$
2665	bond	Br	$OCH_2C_6H_5$	$C(CH_3)_3$
2666	bond	NO_2	$OCH_2C_6H_5$	$C(CH_3)_3$
2667	bond	SCH_3	$OCH_2C_6H_5$	$C(CH_3)_3$
2668	bond	SO_2CH_3	$OCH_2C_6H_5$	$C(CH_3)_3$
2669	bond	$SO_2CH_2CH_3$	$OCH_2C_6H_5$	$C(CH_3)_3$
2670	bond	CH_3	$OCH_2C_6H_5$	$C(CH_3)_3$
2671	bond	CF_3	$OCH_2C_6H_5$	$C(CH_3)_3$
2672	bond	$OCHF_2$	$OCH_2C_6H_5$	$C(CH_3)_3$
2673	CH_2	F	$OCH_2C_6H_5$	$C(CH_3)_3$
2674	CH_2	Cl	$OCH_2C_6H_5$	$C(CH_3)_3$
2675	CH_2	Br	$OCH_2C_6H_5$	$C(CH_3)_3$
2676	CH_2	NO_2	$OCH_2C_6H_5$	$C(CH_3)_3$
2677	CH_2	SCH_3	$OCH_2C_6H_5$	$C(CH_3)_3$
2678	CH_2	SO_2CH_3	$OCH_2C_6H_5$	$C(CH_3)_3$
2679	CH_2	$SO_2CH_2CH_3$	$OCH_2C_6H_5$	$C(CH_3)_3$
2680	CH_2	CH_3	$OCH_2C_6H_5$	$C(CH_3)_3$
2681	CH_2	CF_3	$OCH_2C_6H_5$	$C(CH_3)_3$
2682	CH_2	$OCHF_2$	$OCH_2C_6H_5$	$C(CH_3)_3$
2683	O	F	$OCH_2C_6H_5$	$C(CH_3)_3$
2684	O	Cl	$OCH_2C_6H_5$	$C(CH_3)_3$
2685	O	Br	$OCH_2C_6H_5$	$C(CH_3)_3$
2686	O	NO_2	$OCH_2C_6H_5$	$C(CH_3)_3$

n	X	R^4	R^{10}	R^{11}
2687	O	SCH_3	$OCH_2C_6H_5$	$C(CH_3)_3$
2688	O	SO_2CH_3	$OCH_2C_6H_5$	$C(CH_3)_3$
2689	O	$SO_2CH_2CH_3$	$OCH_2C_6H_5$	$C(CH_3)_3$
2690	O	CH_3	$OCH_2C_6H_5$	$C(CH_3)_3$
2691	O	CF_3	$OCH_2C_6H_5$	$C(CH_3)_3$
2692	O	$OCHF_2$	$OCH_2C_6H_5$	$C(CH_3)_3$
2693	S	F	$OCH_2C_6H_5$	$C(CH_3)_3$
2694	S	Cl	$OCH_2C_6H_5$	$C(CH_3)_3$
2695	S	Br	$OCH_2C_6H_5$	$C(CH_3)_3$
2696	S	NO_2	$OCH_2C_6H_5$	$C(CH_3)_3$
2697	S	SCH_3	$OCH_2C_6H_5$	$C(CH_3)_3$
2698	S	SO_2CH_3	$OCH_2C_6H_5$	$C(CH_3)_3$
2699	S	$SO_2CH_2CH_3$	$OCH_2C_6H_5$	$C(CH_3)_3$
2700	S	CH_3	$OCH_2C_6H_5$	$C(CH_3)_3$
2701	S	CF_3	$OCH_2C_6H_5$	$C(CH_3)_3$
2702	S	$OCHF_2$	$OCH_2C_6H_5$	$C(CH_3)_3$
2703	SO_2	F	$OCH_2C_6H_5$	$C(CH_3)_3$
2704	SO_2	Cl	$OCH_2C_6H_5$	$C(CH_3)_3$
2705	SO_2	Br	$OCH_2C_6H_5$	$C(CH_3)_3$
2706	SO_2	NO_2	$OCH_2C_6H_5$	$C(CH_3)_3$
2707	SO_2	SCH_3	$OCH_2C_6H_5$	$C(CH_3)_3$
2708	SO_2	SO_2CH_3	$OCH_2C_6H_5$	$C(CH_3)_3$
2709	SO_2	$SO_2CH_2CH_3$	$OCH_2C_6H_5$	$C(CH_3)_3$
2710	SO_2	CH_3	$OCH_2C_6H_5$	$C(CH_3)_3$
2711	SO_2	CF_3	$OCH_2C_6H_5$	$C(CH_3)_3$
2712	SO_2	$OCHF_2$	$OCH_2C_6H_5$	$C(CH_3)_3$
2713	bond	F	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$CH(CH_3)_2$
2714	bond	Cl	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$CH(CH_3)_2$
2715	bond	Br	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$CH(CH_3)_2$
2716	bond	NO_2	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$CH(CH_3)_2$
2717	bond	SCH_3	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$CH(CH_3)_2$
2718	bond	SO_2CH_3	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$CH(CH_3)_2$
2719	bond	$SO_2CH_2CH_3$	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$CH(CH_3)_2$
2720	bond	CH_3	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$CH(CH_3)_2$
2721	bond	CF_3	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$CH(CH_3)_2$
2722	bond	$OCHF_2$	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$CH(CH_3)_2$
2723	CH_2	F	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$CH(CH_3)_2$
2724	CH_2	Cl	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$CH(CH_3)_2$
2725	CH_2	Br	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$CH(CH_3)_2$

n	X	R^4	R^{10}	R^{11}
2726	CH_2	NO_2	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2727	CH_2	SCH_3	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2728	CH_2	SO_2CH_3	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2729	CH_2	$SO_2CH_2CH_3$	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2730	CH_2	CH_3	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2731	CH_2	CF_3	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2732	CH_2	$OCHF_2$	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2733	O	F	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2734	O	Cl	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2735	O	Br	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2736	O	NO_2	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2737	O	SCH_3	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2738	O	SO_2CH_3	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2739	O	$SO_2CH_2CH_3$	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2740	O	CH_3	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2741	O	CF_3	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2742	O	$OCHF_2$	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2743	S	F	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2744	S	Cl	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2745	S	Br	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2746	S	NO_2	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2747	S	SCH_3	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2748	S	SO_2CH_3	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2749	S	$SO_2CH_2CH_3$	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2750	S	CH_3	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2751	S	CF_3	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2752	S	$OCHF_2$	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2753	SO_2	F	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2754	SO_2	Cl	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2755	SO_2	Br	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2756	SO_2	NO_2	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2757	SO_2	SCH_3	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2758	SO_2	SO_2CH_3	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2759	SO_2	$SO_2CH_2CH_3$	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2760	SO_2	CH_3	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2761	SO_2	CF_3	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2762	SO_2	$OCHF_2$	$OSO_2(4-CH_3-C_6H_4)$	$CH(CH_3)_2$
2763	bond	F	$OSO_2(4-CH_3-C_6H_4)$	$C(CH_3)_3$
2764	bond	Cl	$OSO_2(4-CH_3-C_6H_4)$	$C(CH_3)_3$

n	X	R^4	R^{10}	R^{11}
2765	bond	Br	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2766	bond	NO_2	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2767	bond	SCH_3	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2768	bond	SO_2CH_3	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2769	bond	$SO_2CH_2CH_3$	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2770	bond	CH_3	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2771	bond	CF_3	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2772	bond	$OCHF_2$	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2773	CH_2	F	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2774	CH_2	Cl	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2775	CH_2	Br	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2776	CH_2	NO_2	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2777	CH_2	SCH_3	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2778	CH_2	SO_2CH_3	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2779	CH_2	$SO_2CH_2CH_3$	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2780	CH_2	CH_3	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2781	CH_2	CF_3	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2782	CH_2	$OCHF_2$	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2783	O	F	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2784	O	Cl	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2785	O	Br	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2786	O	NO_2	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2787	O	SCH_3	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2788	O	SO_2CH_3	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2789	O	$SO_2CH_2CH_3$	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2790	O	CH_3	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2791	O	CF_3	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2792	O	$OCHF_2$	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2793	S	F	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2794	S	Cl	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2795	S	Br	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2796	S	NO_2	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2797	S	SCH_3	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2798	S	SO_2CH_3	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2799	S	$SO_2CH_2CH_3$	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2800	S	CH_3	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2801	S	CF_3	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2802	S	$OCHF_2$	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$
2803	SO_2	F	$OSO_2(4\text{-}CH_3\text{-}C_6H_4)$	$C(CH_3)_3$

n	X	R^4	R^{10}	R^{11}
2804	SO_2	Cl	$OSO_2(4-CH_3-C_6H_4)$	$C(CH_3)_3$
2805	SO_2	Br	$OSO_2(4-CH_3-C_6H_4)$	$C(CH_3)_3$
2806	SO_2	NO_2	$OSO_2(4-CH_3-C_6H_4)$	$C(CH_3)_3$
2807	SO_2	SCH_3	$OSO_2(4-CH_3-C_6H_4)$	$C(CH_3)_3$
2808	SO_2	SO_2CH_3	$OSO_2(4-CH_3-C_6H_4)$	$C(CH_3)_3$
2809	SO_2	$SO_2CH_2CH_3$	$OSO_2(4-CH_3-C_6H_4)$	$C(CH_3)_3$
2810	SO_2	CH_3	$OSO_2(4-CH_3-C_6H_4)$	$C(CH_3)_3$
2811	SO_2	CF_3	$OSO_2(4-CH_3-C_6H_4)$	$C(CH_3)_3$
2812	SO_2	$OCHF_2$	$OSO_2(4-CH_3-C_6H_4)$	$C(CH_3)_3$
2813	bond	F	SCH_3	$CH(CH_3)_2$
2814	bond	Cl	SCH_3	$CH(CH_3)_2$
2815	bond	Br	SCH_3	$CH(CH_3)_2$
2816	bond	NO_2	SCH_3	$CH(CH_3)_2$
2817	bond	SCH_3	SCH_3	$CH(CH_3)_2$
2818	bond	SO_2CH_3	SCH_3	$CH(CH_3)_2$
2819	bond	$SO_2CH_2CH_3$	SCH_3	$CH(CH_3)_2$
2820	bond	CH_3	SCH_3	$CH(CH_3)_2$
2821	bond	CF_3	SCH_3	$CH(CH_3)_2$
2822	bond	$OCHF_2$	SCH_3	$CH(CH_3)_2$
2823	CH_2	F	SCH_3	$CH(CH_3)_2$
2824	CH_2	Cl	SCH_3	$CH(CH_3)_2$
2825	CH_2	Br	SCH_3	$CH(CH_3)_2$
2826	CH_2	NO_2	SCH_3	$CH(CH_3)_2$
2827	CH_2	SCH_3	SCH_3	$CH(CH_3)_2$
2828	CH_2	SO_2CH_3	SCH_3	$CH(CH_3)_2$
2829	CH_2	$SO_2CH_2CH_3$	SCH_3	$CH(CH_3)_2$
2830	CH_2	CH_3	SCH_3	$CH(CH_3)_2$
2831	CH_2	CF_3	SCH_3	$CH(CH_3)_2$
2832	CH_2	$OCHF_2$	SCH_3	$CH(CH_3)_2$
2833	O	F	SCH_3	$CH(CH_3)_2$
2834	O	Cl	SCH_3	$CH(CH_3)_2$
2835	O	Br	SCH_3	$CH(CH_3)_2$
2836	O	NO_2	SCH_3	$CH(CH_3)_2$
2837	O	SCH_3	SCH_3	$CH(CH_3)_2$
2838	O	SO_2CH_3	SCH_3	$CH(CH_3)_2$
2839	O	$SO_2CH_2CH_3$	SCH_3	$CH(CH_3)_2$
2840	O	CH_3	SCH_3	$CH(CH_3)_2$
2841	O	CF_3	SCH_3	$CH(CH_3)_2$
2842	O	$OCHF_2$	SCH_3	$CH(CH_3)_2$

n	X	R^4	R^{10}	R^{11}
2843	S	F	SCH_3	$CH(CH_3)_2$
2844	S	Cl	SCH_3	$CH(CH_3)_2$
2845	S	Br	SCH_3	$CH(CH_3)_2$
2846	S	NO_2	SCH_3	$CH(CH_3)_2$
2847	S	SCH_3	SCH_3	$CH(CH_3)_2$
2848	S	SO_2CH_3	SCH_3	$CH(CH_3)_2$
2849	S	$SO_2CH_2CH_3$	SCH_3	$CH(CH_3)_2$
2850	S	CH_3	SCH_3	$CH(CH_3)_2$
2851	S	CF_3	SCH_3	$CH(CH_3)_2$
2852	S	$OCHF_2$	SCH_3	$CH(CH_3)_2$
2853	SO_2	F	SCH_3	$CH(CH_3)_2$
2854	SO_2	Cl	SCH_3	$CH(CH_3)_2$
2855	SO_2	Br	SCH_3	$CH(CH_3)_2$
2856	SO_2	NO_2	SCH_3	$CH(CH_3)_2$
2857	SO_2	SCH_3	SCH_3	$CH(CH_3)_2$
2858	SO_2	SO_2CH_3	SCH_3	$CH(CH_3)_2$
2859	SO_2	$SO_2CH_2CH_3$	SCH_3	$CH(CH_3)_2$
2860	SO_2	CH_3	SCH_3	$CH(CH_3)_2$
2861	SO_2	CF_3	SCH_3	$CH(CH_3)_2$
2862	SO_2	$OCHF_2$	SCH_3	$CH(CH_3)_2$
2863	bond	F	SCH_3	$C(CH_3)_3$
2864	bond	Cl	SCH_3	$C(CH_3)_3$
2865	bond	Br	SCH_3	$C(CH_3)_3$
2866	bond	NO_2	SCH_3	$C(CH_3)_3$
2867	bond	SCH_3	SCH_3	$C(CH_3)_3$
2868	bond	SO_2CH_3	SCH_3	$C(CH_3)_3$
2869	bond	$SO_2CH_2CH_3$	SCH_3	$C(CH_3)_3$
2870	bond	CH_3	SCH_3	$C(CH_3)_3$
2871	bond	CF_3	SCH_3	$C(CH_3)_3$
2872	bond	$OCHF_2$	SCH_3	$C(CH_3)_3$
2873	CH_2	F	SCH_3	$C(CH_3)_3$
2874	CH_2	Cl	SCH_3	$C(CH_3)_3$
2875	CH_2	Br	SCH_3	$C(CH_3)_3$
2876	CH_2	NO_2	SCH_3	$C(CH_3)_3$
2877	CH_2	SCH_3	SCH_3	$C(CH_3)_3$
2878	CH_2	SO_2CH_3	SCH_3	$C(CH_3)_3$
2879	CH_2	$SO_2CH_2CH_3$	SCH_3	$C(CH_3)_3$
2880	CH_2	CH_3	SCH_3	$C(CH_3)_3$
2881	CH_2	CF_3	SCH_3	$C(CH_3)_3$

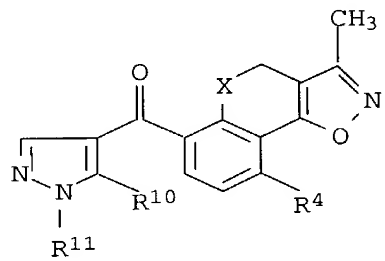
n	X	R^4	R^{10}	R^{11}
2882	CH_2	$OCHF_2$	SCH_3	$C(CH_3)_3$
2883	O	F	SCH_3	$C(CH_3)_3$
2884	O	Cl	SCH_3	$C(CH_3)_3$
2885	O	Br	SCH_3	$C(CH_3)_3$
2886	O	NO_2	SCH_3	$C(CH_3)_3$
2887	O	SCH_3	SCH_3	$C(CH_3)_3$
2888	O	SO_2CH_3	SCH_3	$C(CH_3)_3$
2889	O	$SO_2CH_2CH_3$	SCH_3	$C(CH_3)_3$
2890	O	CH_3	SCH_3	$C(CH_3)_3$
2891	O	CF_3	SCH_3	$C(CH_3)_3$
2892	O	$OCHF_2$	SCH_3	$C(CH_3)_3$
2893	S	F	SCH_3	$C(CH_3)_3$
2894	S	Cl	SCH_3	$C(CH_3)_3$
2895	S	Br	SCH_3	$C(CH_3)_3$
2896	S	NO_2	SCH_3	$C(CH_3)_3$
2897	S	SCH_3	SCH_3	$C(CH_3)_3$
2898	S	SO_2CH_3	SCH_3	$C(CH_3)_3$
2899	S	$SO_2CH_2CH_3$	SCH_3	$C(CH_3)_3$
2900	S	CH_3	SCH_3	$C(CH_3)_3$
2901	S	CF_3	SCH_3	$C(CH_3)_3$
2902	S	$OCHF_2$	SCH_3	$C(CH_3)_3$
2903	SO_2	F	SCH_3	$C(CH_3)_3$
2904	SO_2	Cl	SCH_3	$C(CH_3)_3$
2905	SO_2	Br	SCH_3	$C(CH_3)_3$
2906	SO_2	NO_2	SCH_3	$C(CH_3)_3$
2907	SO_2	SCH_3	SCH_3	$C(CH_3)_3$
2908	SO_2	SO_2CH_3	SCH_3	$C(CH_3)_3$
2909	SO_2	$SO_2CH_2CH_3$	SCH_3	$C(CH_3)_3$
2910	SO_2	CH_3	SCH_3	$C(CH_3)_3$
2911	SO_2	CF_3	SCH_3	$C(CH_3)_3$
2912	SO_2	$OCHF_2$	SCH_3	$C(CH_3)_3$
2913	bond	F	Cl	$CH(CH_3)_2$
2914	bond	Cl	Cl	$CH(CH_3)_2$
2915	bond	Br	Cl	$CH(CH_3)_2$
2916	bond	NO_2	Cl	$CH(CH_3)_2$
2917	bond	SCH_3	Cl	$CH(CH_3)_2$
2918	bond	SO_2CH_3	Cl	$CH(CH_3)_2$
2919	bond	$SO_2CH_2CH_3$	Cl	$CH(CH_3)_2$
2920	bond	CH_3	Cl	$CH(CH_3)_2$

n	X	R^4	R^{10}	R^{11}
2921	bond	CF_3	Cl	$CH(CH_3)_2$
2922	bond	$OCHF_2$	Cl	$CH(CH_3)_2$
2923	CH_2	F	Cl	$CH(CH_3)_2$
2924	CH_2	Cl	Cl	$CH(CH_3)_2$
2925	CH_2	Br	Cl	$CH(CH_3)_2$
2926	CH_2	NO_2	Cl	$CH(CH_3)_2$
2927	CH_2	SCH_3	Cl	$CH(CH_3)_2$
2928	CH_2	SO_2CH_3	Cl	$CH(CH_3)_2$
2929	CH_2	$SO_2CH_2CH_3$	Cl	$CH(CH_3)_2$
2930	CH_2	CH_3	Cl	$CH(CH_3)_2$
2931	CH_2	CF_3	Cl	$CH(CH_3)_2$
2932	CH_2	$OCHF_2$	Cl	$CH(CH_3)_2$
2933	O	F	Cl	$CH(CH_3)_2$
2934	O	Cl	Cl	$CH(CH_3)_2$
2935	O	Br	Cl	$CH(CH_3)_2$
2936	O	NO_2	Cl	$CH(CH_3)_2$
2937	O	SCH_3	Cl	$CH(CH_3)_2$
2938	O	SO_2CH_3	Cl	$CH(CH_3)_2$
2939	O	$SO_2CH_2CH_3$	Cl	$CH(CH_3)_2$
2940	O	CH_3	Cl	$CH(CH_3)_2$
2941	O	CF_3	Cl	$CH(CH_3)_2$
2942	O	$OCHF_2$	Cl	$CH(CH_3)_2$
2943	S	F	Cl	$CH(CH_3)_2$
2944	S	Cl	Cl	$CH(CH_3)_2$
2945	S	Br	Cl	$CH(CH_3)_2$
2946	S	NO_2	Cl	$CH(CH_3)_2$
2947	S	SCH_3	Cl	$CH(CH_3)_2$
2948	S	SO_2CH_3	Cl	$CH(CH_3)_2$
2949	S	$SO_2CH_2CH_3$	Cl	$CH(CH_3)_2$
2950	S	CH_3	Cl	$CH(CH_3)_2$
2951	S	CF_3	Cl	$CH(CH_3)_2$
2952	S	$OCHF_2$	Cl	$CH(CH_3)_2$
2953	SO_2	F	Cl	$CH(CH_3)_2$
2954	SO_2	Cl	Cl	$CH(CH_3)_2$
2955	SO_2	Br	Cl	$CH(CH_3)_2$
2956	SO_2	NO_2	Cl	$CH(CH_3)_2$
2957	SO_2	SCH_3	Cl	$CH(CH_3)_2$
2958	SO_2	SO_2CH_3	Cl	$CH(CH_3)_2$
2959	SO_2	$SO_2CH_2CH_3$	Cl	$CH(CH_3)_2$

n	X	R^4	R^{10}	R^{11}
2960	SO_2	CH_3	Cl	$CH(CH_3)_2$
2961	SO_2	CF_3	Cl	$CH(CH_3)_2$
2962	SO_2	$OCHF_2$	Cl	$CH(CH_3)_2$
2963	bond	F	Cl	$C(CH_3)_3$
2964	bond	Cl	Cl	$C(CH_3)_3$
2965	bond	Br	Cl	$C(CH_3)_3$
2966	bond	NO_2	Cl	$C(CH_3)_3$
2967	bond	SCH_3	Cl	$C(CH_3)_3$
2968	bond	SO_2CH_3	Cl	$C(CH_3)_3$
2969	bond	$SO_2CH_2CH_3$	Cl	$C(CH_3)_3$
2970	bond	CH_3	Cl	$C(CH_3)_3$
2971	bond	CF_3	Cl	$C(CH_3)_3$
2972	bond	$OCHF_2$	Cl	$C(CH_3)_3$
2973	CH_2	F	Cl	$C(CH_3)_3$
2974	CH_2	Cl	Cl	$C(CH_3)_3$
2975	CH_2	Br	Cl	$C(CH_3)_3$
2976	CH_2	NO_2	Cl	$C(CH_3)_3$
2977	CH_2	SCH_3	Cl	$C(CH_3)_3$
2978	CH_2	SO_2CH_3	Cl	$C(CH_3)_3$
2979	CH_2	$SO_2CH_2CH_3$	Cl	$C(CH_3)_3$
2980	CH_2	CH_3	Cl	$C(CH_3)_3$
2981	CH_2	CF_3	Cl	$C(CH_3)_3$
2982	CH_2	$OCHF_2$	Cl	$C(CH_3)_3$
2983	O	F	Cl	$C(CH_3)_3$
2984	O	Cl	Cl	$C(CH_3)_3$
2985	O	Br	Cl	$C(CH_3)_3$
2986	O	NO_2	Cl	$C(CH_3)_3$
2987	O	SCH_3	Cl	$C(CH_3)_3$
2988	O	SO_2CH_3	Cl	$C(CH_3)_3$
2989	O	$SO_2CH_2CH_3$	Cl	$C(CH_3)_3$
2990	O	CH_3	Cl	$C(CH_3)_3$
2991	O	CF_3	Cl	$C(CH_3)_3$
2992	O	$OCHF_2$	Cl	$C(CH_3)_3$
2993	S	F	Cl	$C(CH_3)_3$
2994	S	Cl	Cl	$C(CH_3)_3$
2995	S	Br	Cl	$C(CH_3)_3$
2996	S	NO_2	Cl	$C(CH_3)_3$
2997	S	SCH_3	Cl	$C(CH_3)_3$
2998	S	SO_2CH_3	Cl	$C(CH_3)_3$

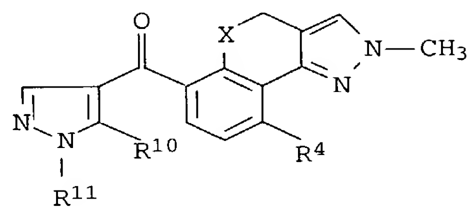
n	X	R^4	R^{10}	R^{11}
2999	S	$SO_2CH_2CH_3$	Cl	$C(CH_3)_3$
3000	S	CH_3	Cl	$C(CH_3)_3$
3001	S	CF_3	Cl	$C(CH_3)_3$
3002	S	$OCHF_2$	Cl	$C(CH_3)_3$
3003	SO_2	F	Cl	$C(CH_3)_3$
3004	SO_2	Cl	Cl	$C(CH_3)_3$
3005	SO_2	Br	Cl	$C(CH_3)_3$
3006	SO_2	NO_2	Cl	$C(CH_3)_3$
3007	SO_2	SCH_3	Cl	$C(CH_3)_3$
3008	SO_2	SO_2CH_3	Cl	$C(CH_3)_3$
3009	SO_2	$SO_2CH_2CH_3$	Cl	$C(CH_3)_3$
3010	SO_2	CH_3	Cl	$C(CH_3)_3$
3011	SO_2	CF_3	Cl	$C(CH_3)_3$
3012	SO_2	$OCHF_2$	Cl	$C(CH_3)_3$

Very particular preference is also given to the compounds of the formula Ia2 (≡ Ia where R^1, R^2, R^5 and R^{12} = H, R^3 = CH_3, l = 1), in particular to the compounds Ia2.n, where the variables X, R^4, R^{10} and R^{11} are as defined in Table 1.



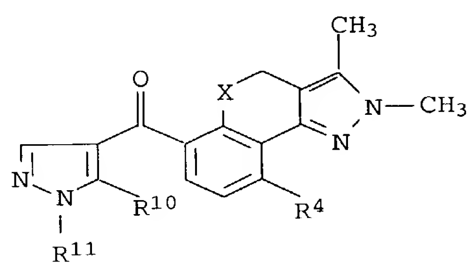
Ia2

Very particular preference is also given to the compounds of the formula Ia3 (≡ Ia where R^1, R^2, R^5 and R^{12} = H, R^3 = CH_3, l = 1), in particular to the compounds Ia3.n, where the variables X, R^4, R^{10} and R^{11} are as defined in Table 1.



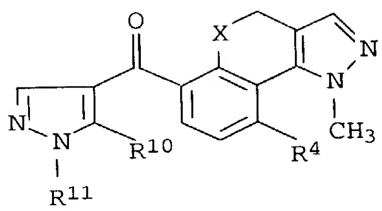
Ia3

Very particular preference is also given to the compounds of the formula Ia4 (≡ Ia where R^1, R^2, R^5 and R^{12} = H, R^3 = CH_3, l = 2), in particular to the compounds Ia4.n, where the variables X, R^4, R^{10} and R^{11} are as defined in Table 1.



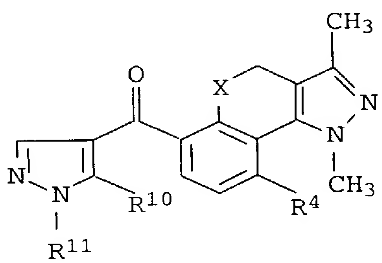
Ia4

Very particular preference is also given to the compounds of the formula Ia5 (≡ Ia where R^1, R^2, R^5 and R^{12} = H, R^3 = CH_3, l = 1), in particular to the compounds Ia5.n, where the variables X, R^4, R^{10} and R^{11} are as defined in Table 1.



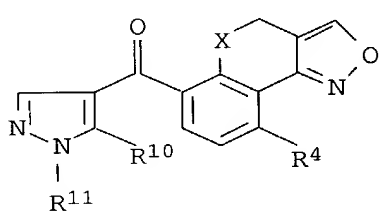
Ia5

Very particular preference is also given to the compounds of the formula Ia6 (≡ Ia where R^1, R^2, R^5 and R^{12} = H, R^3 = CH_3, l = 2), in particular to the compounds Ia6.n, where the variables X, R^4, R^{10} and R^{11} are as defined in Table 1.



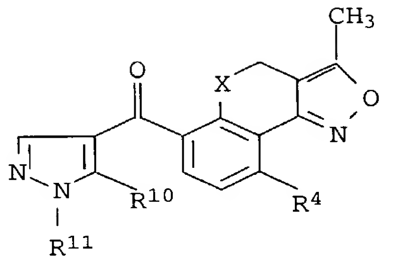
Ia6

Very particular preference is also given to the compounds of the formula Ia7 (≡ Ia where R^1, R^2, R^5 and R^{12} = H, l = 0), in particular to the compounds Ia7.n, where the variables X, R^4, R^{10} and R^{11} are as defined in Table 1.



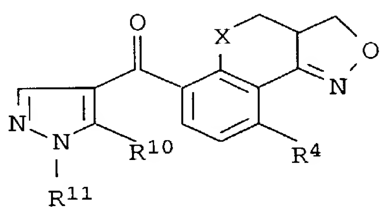
Ia7

Very particular preference is also given to the compounds of the formula Ia8 (≡ Ia where R^1, R^2, R^5 and R^{12} = H, R^3 = CH^3, l = 1), in particular to the compounds Ia8.n, where the variables X, R^4, R^{10} and R^{11} are as defined in Table 1.



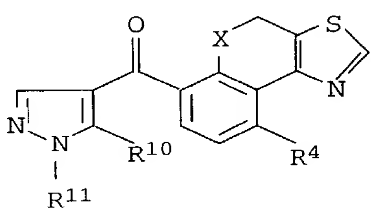
Ia8

Very particular preference is also given to the compounds of the formula Ia9 (≡ Ia where R^1, R^2, R^5 and R^{12} = H, l = 0), in particular to the compounds Ia9.n, where the variables X, R^4, R^{10} and R^{11} are as defined in Table 1.



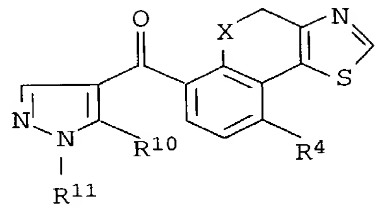
Ia9

Very particular preference is also given to the compounds of the formula Ia10 (≡ Ia where R^1, R^2, R^5 and R^{12} = H, l = 0), in particular to the compounds Ia10.n, where the variables X, R^4, R^{10} and R^{11} are as defined in Table 1.



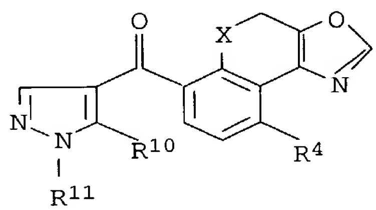
Ia10

Very particular preference is also given to the compounds of the formula Ia11 (≡ Ia where R^1, R^2, R^5 and R^{12} = H, l = 0), in particular to the compounds Ia11.n, where the variables X, R^4, R^{10} and R^{11} are as defined in Table 1.



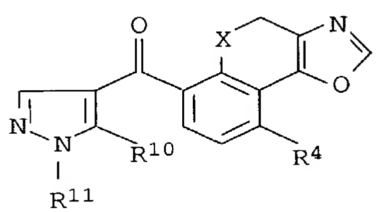
Ia11

Very particular preference is also given to the compounds of the formula Ia12 (≡ Ia where R^1, R^2, R^5 and R^{12} = H, l = 0), in particular to the compounds Ia12.n, where the variables X, R^4, R^{10} and R^{11} are as defined in Table 1.



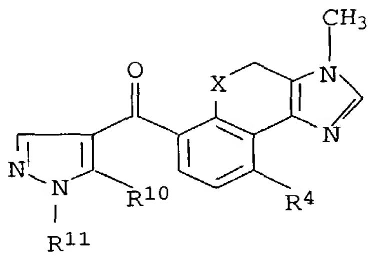
Ia12

Very particular preference is also given to the compounds of the formula Ia13 (≡ Ia where R^1, R^2, R^5 and R^{12} = H, l = 0), in particular to the compounds Ia13.n, where the variables X, R^4, R^{10} and R^{11} are as defined in Table 1.



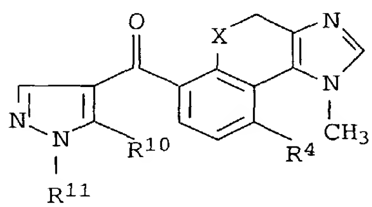
Ia13

Very particular preference is also given to the compounds of the formula Ia14 (≡ Ia where R^1, R^2, R^5 and R^{12} = H, R^3 = CH_3, l = 1), in particular to the compounds Ia14.n, where the variables X, R^4, R^{10} and R^{11} are as defined in Table 1.



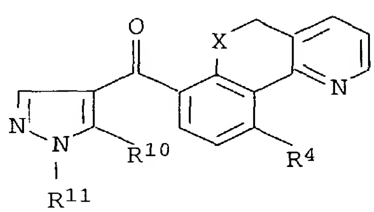
Ia14

Very particular preference is also given to the compounds of the formula Ia15 (≡ Ia where R^1, R^2, R^5 and R^{12} = H, R^3 = CH_3, l = 1), in particular to the compounds Ia15.n, where the variables X, R^4, R^{10} and R^{11} are as defined in Table 1.



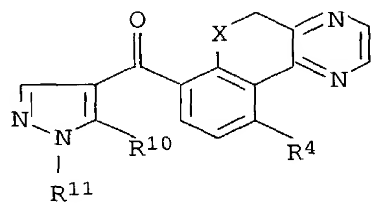
Ia15

Very particular preference is also given to the compounds of the formula Ia16 (≡ Ia where R^1, R^2, R^5 and R^{12} = H, l = 0), in particular to the compounds Ia16.n, where the variables X, R^4, R^{10} and R^{11} are as defined in Table 1.



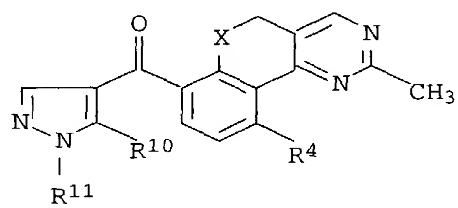
Ia16

Very particular preference is also given to the compounds of the formula Ia17 (≡ Ia where R^1, R^2, R^5 and R^{12} = H, l = 0), in particular to the compounds Ia17.n, where the variables X, R^4, R^{10} and R^{11} are as defined in Table 1.



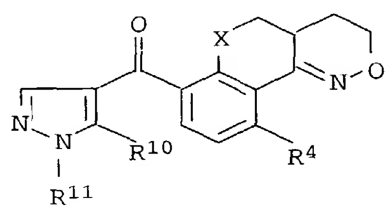
Ia17

Very particular preference is also given to the compounds of the formula Ia18 (≡ Ia where R^1, R^2, R^5 and R^{12} = H, R^{13} = CH_3, l = 1), in particular to the compounds Ia18.n, where the variables X, R^4, R^{10} and R^{11} are as defined in Table 1.



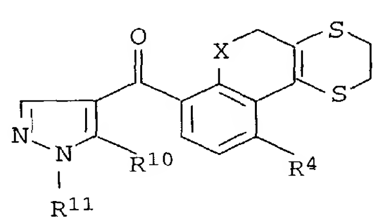
Ia18

Very particular preference is also given to the compounds of the formula Ia19 (≡ Ia where R^1, R^2, R^5 and R^{12} = H, l = 0), in particular to the compounds Ia19.n, where the variables X, R^4, R^{10} and R^{11} are as defined in Table 1.



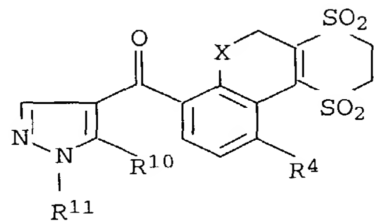
Ia19

Very particular preference is also given to the compounds of the formula Ia20 (≡ Ia where R^1, R^2, R^5 and R^{12} = H, l = 0), in particular to the compounds Ia20.n, where the variables X, R^4, R^{10} and R^{11} are as defined in Table 1.



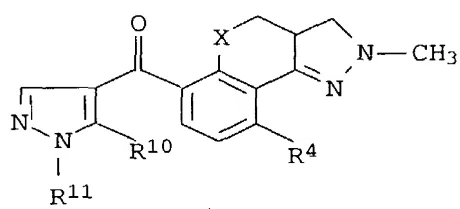
Ia20

Very particular preference is also given to the compounds of the formula Ia21 (≡ Ia where R^1, R^2, R^5 and R^{12} = H, l = 0), in particular to the compounds Ia21.n, where the variables X, R^4, R^{10} and R^{11} are as defined in Table 1.



Ia21

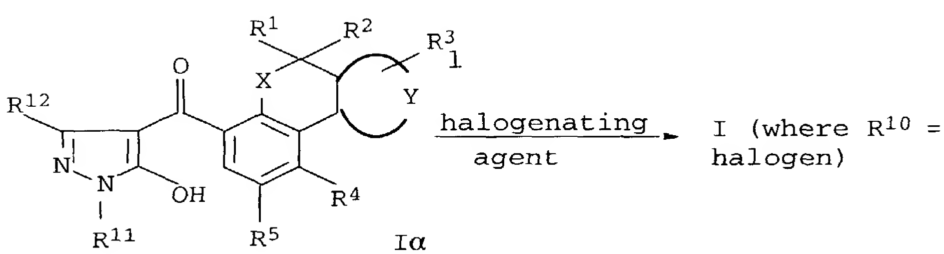
Very particular preference is also given to the compounds of the formula Ia22 (≡ Ia where R^1, R^2, R^5 and R^{12} = H, R^3 = CH_3, l = 1), in particular to the compounds Ia22.n, where the variables X, R^4, R^{10} and R^{11} are as defined in Table 1.



Ia22

The tricyclic benzoylpyrazole derivatives of the formula I can be obtained by various routes, for example by one of the following processes:

A. Preparation of compounds of the formula I where R^{10} = halogen by reacting a tricyclic benzoylpyrazole derivative of the formula Iα (≡ I where R^{10} = hydroxyl) with a halogenating agent:



Suitable halogenating agents are, for example, phosgene, diphosgene, triphosgene, thionyl chloride, oxalyl chloride, phosphorus oxychloride, phosphorus pentachloride, mesyl

chloride, chloromethylene-N,N-dimethylammonium chloride, oxalyl bromide, phosphorus oxybromide, etc.

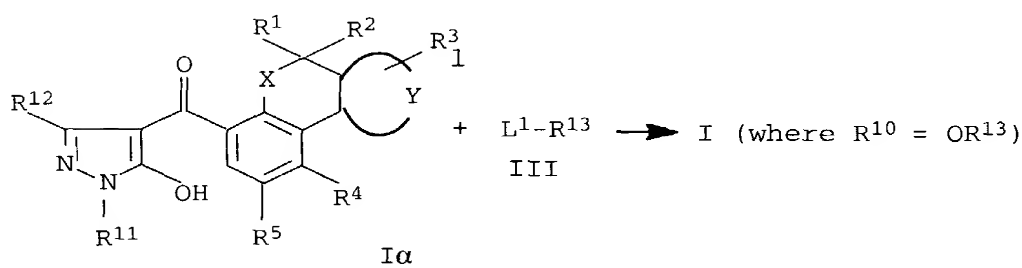
The starting materials are generally employed in equimolar amounts. However, it may also be advantageous to employ an excess of one or the other component.

Suitable solvents are, for example, chlorinated hydrocarbons, such as methylene chloride or 1,2-dichloroethane, aromatic hydrocarbons, for example toluene, xylene or chlorobenzene, polar aprotic solvents, such as acetonitrile, dimethylformamide or dimethyl sulfoxide, or mixtures of these. However, it is also possible to carry out the reaction in the absence of solvent.

The reaction temperature is generally in the range from 0°C to the boiling point of the reaction mixture.

Work-up can be carried out in a manner known per se to afford the product.

B. Preparation of compounds of the formula I where R^{10} = OR^{13}, by reacting a tricyclic benzoylpyrazole derivative of the formula Iα (≡ I where R^{10} = hydroxyl) with an alkylating agent III.



L^1 is a nucleophilically replaceable leaving group, such as halogen, for example chlorine or bromine, hetaryl, for example imidazolyl, carboxylate, for example acetate, or sulfonate, for example mesylate or triflate, etc.

The compounds of the formula III can be employed directly, such as, for example, in the case of the carbonyl halides, or be generated in situ, for example activated carboxylic acids (using carboxylic acid and dicyclohexylcarbodiimide etc.).

The starting materials are generally employed in equimolar amounts. However, it may also be advantageous to employ an excess of one or the other component.

If appropriate, it may also be advantageous to carry out the reaction in the presence of a base. Here, the reactants and the base are advantageously employed in equimolar amounts. In certain cases, an excess of base, for example from 1.5 to 3 molar equivalents, may be advantageous.

Suitable bases are tertiary alkylamines, such as triethylamine, aromatic amines, such as pyridine, alkali metal carbonates, for example sodium carbonate or potassium carbonate, alkali metal bicarbonates, for example sodium bicarbonate and potassium bicarbonate, alkali metal alkoxides, such as sodium methoxide, sodium ethoxide, potassium tert-butoxide, or alkali metal hydrides, for example sodium hydride. Preference is given to using triethylamine or pyridine.

Suitable solvents are, for example, chlorinated hydrocarbons, such as methylene chloride or 1,2-dichloroethane, aromatic hydrocarbons, for example toluene, xylene or chlorobenzene, ethers, such as diethyl ether, methyl tert-butyl ether, tetrahydrofuran or dioxane, polar aprotic solvents, such as acetonitrile, dimethylformamide or dimethyl sulfoxide, or esters, such as ethyl acetate, or mixtures of these.

The reaction temperature is generally in the range from 0°C to the boiling point of the reaction mixture.

Work-up can be carried out in a manner known per se to afford the product.

C. Preparation of compounds of the formula I where $R^{10} = OR^{13}$, SR^{13}, $NR^{15}R^{16}$ or N-bonded heterocyclyl by reacting compounds of the formula $I\beta$ ($\equiv$ I where R^{10} = halogen) with a compound of the formula $IV\alpha$, $IV\beta$, $IV\gamma$ or $IV\delta$, if appropriate in the presence of a base or with prior formation of salt.

$I\beta$ + HOR^{13} ($IV\alpha$) or HSR^{13} ($IV\beta$) or $HNR^{15}R^{16}$ ($IV\gamma$) or H(N-bonded heterocyclyl) ($IV\delta$) $\longrightarrow$ I (where R^{10} = OR^{13}, SR^{13}, $NR^{15}R^{16}$ or N-bonded heterocyclyl)

The starting materials are generally employed in equimolar amounts. However, it may also be advantageous to employ an excess of one or the other component.

If appropriate, it may also be advantageous to carry out the reaction in the presence of a base. Here, the reactants and the base are advantageously employed in equimolar amounts. An excess of base, for example from 1.5 to 3 molar equivalents, based on $I\beta$ (where R^{10} = halogen), may be advantageous in certain cases.

Suitable bases are tertiary alkylamines, such as triethylamine, aromatic amines, such as pyridine, alkali metal carbonates, for example sodium carbonate or potassium carbonate, alkali metal bicarbonates, for example sodium bicarbonate and potassium bicarbonate, alkali metal alkoxides, such as sodium methoxide, sodium ethoxide, potassium tert-butoxide, or alkali metal hydrides, for example sodium hydride. Preference is given to using sodium hydride or potassium tert-butoxide.

Suitable solvents are, for example, chlorinated hydrocarbons, such as methylene chloride or 1,2-dichloroethane, aromatic hydrocarbons, for example toluene, xylene or chlorobenzene, ethers, such as diethyl ether, methyl tert-butyl ether, tetrahydrofuran or dioxane, polar aprotic solvents, such as acetonitrile, dimethylformamide or dimethyl sulfoxide, or mixtures of these.

The reaction temperature is generally in the range from 0°C to the boiling point of the reaction mixture.

Work-up can be carried out in a manner known per se to afford the product.

D. Preparation of compounds of the formula I where $R^{10} = SO_2R^{14}$ by reacting compounds of the formula I where $R^{10} = SR^{10}$ (Iγ) with an oxidizing agent.

$$I\gamma \xrightarrow{\text{oxidizing agent}} I \text{ (where } R^{10} = SO_2R^{14})$$

Suitable oxidizing agents are, for example, m-chloroperbenzoic acid, peroxyacetic acid, trifluoroperoxyacetic acid, hydrogen peroxide, if appropriate in the presence of a catalyst, such as tungstate.

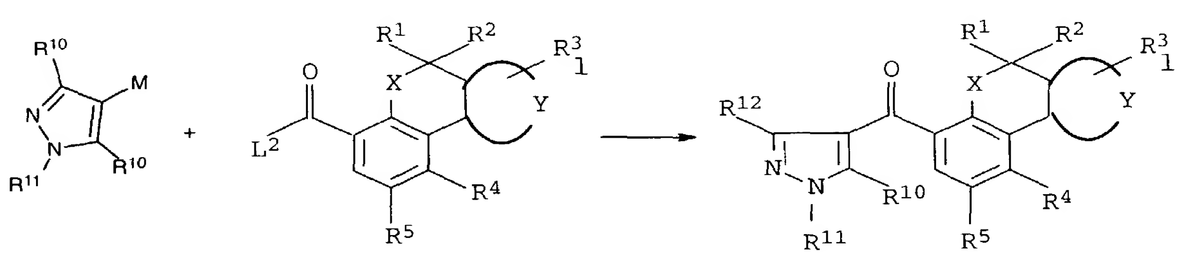
The starting materials are generally employed in equimolar amounts. However, it may also be advantageous to employ an excess of one or the other component.

Suitable solvents are, for example, chlorinated hydrocarbons, such as methylene chloride or 1,2-dichloroethane, aromatic hydrocarbons, for example, toluene, xylene or chlorobenzene, ethers, such as diethyl ether, methyltert-butyl ether, tetrahydrofuran or dioxane, polar aprotic solvents, such as acetonitrile or dimethylformamide, or esters, such as ethyl acetate, or mixtures of these.

The reaction temperature is generally in the range from 0°C to the boiling point of the reaction mixture.

Work-up can be carried out in a manner known per se to afford the product.

E. Preparation of compounds of the formula I where R^9 = IIa (where $R^{10} \neq$ hydroxyl or mercapto) by reacting a metalated pyrazole derivative of the formula V with a tricyclic benzoic acid derivative of the formula VIα:



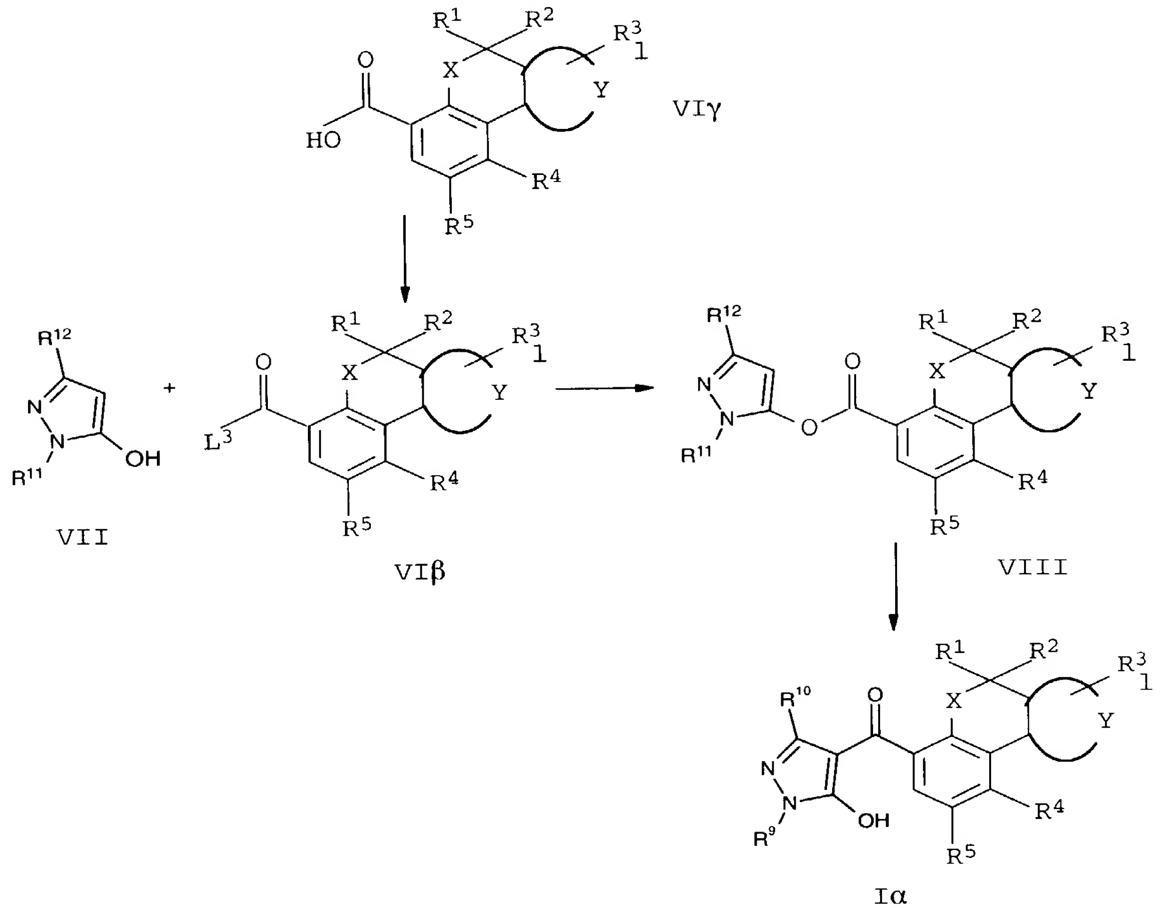
V VIα Ia (where $R^{10} \neq$ OH, SH)

Here, M is a metal, in particular an alkali metal, such as lithium or sodium, an alkaline earth metal, such as, for example, magnesium, or a transition metal, such as palladium, nickel, etc. and L^2 is a nucleophilically replaceable leaving group, such as halogen, for example chlorine or bromine, alkylsulfonate, such as mesylate, haloalkylsulfonate, such as triflate, or cyanide.

The reaction is generally carried out at temperatures of from -100°C to the reflux temperature of the reaction mixture. Suitable solvents are inert aprotic solvents, such as ethers, for example diethyl ether, tetrahydrofuran. The compounds of the formula VIα are generally employed in excess, but it may also be advantageous to employ them in equimolar amounts or in substoichiometric amounts. Work-up is carried out to afford the product.

The metalated pyrazole derivatives of the formula V can be formed in a manner known per se by reacting pyrazoles which are halogenated in the 4-position with metals, such as lithium, sodium, magnesium, etc., or with organometallic compounds, such as, for example, butyllithium. However, it is also possible to metalate pyrazoles which are linked in the 4 position to hydrogen directly, for example with the abovementioned metals or organometallic compounds. The reactions are generally carried out in an inert aprotic solvent, preferably in ether, such as diethyl ether, tetrahydrofuran, etc. The reaction temperature is in the range from -100°C to the boiling point of the reaction mixture. The compounds of the formula V are generally directly reacted further or generated in situ.

F. Preparation of compounds of the formula Iα ($\equiv$ I where R^{10} = hydroxyl) by reacting an activated tricyclic benzoic acid of the formula VIβ or a tricyclic benzoic acid VIγ, preferably activated in situ, with a pyrazole of the formula VII to give the acylation product, followed by rearrangement.



L^3 is a nucleophilically replaceable leaving group, such as halogen, for example bromine or chlorine, hetaryl, for example imidazolyl or pyridyl, carboxylate, for example acetate or trifluoroacetate, etc.

The activated tricyclic benzoic acid VIβ can be employed directly, such as in the case of the tricyclic benzoyl halides, or be generated in situ, for example using dicyclohexylcarbodiimide, triphenylphosphine/azodicarboxylic ester, 2-pyridine disulfide/triphenylphosphine, carbonyldiimidazole, etc.

If appropriate, it may be advantageous to carry out the acylation reaction in the presence of a base. Here, the reactants and the auxiliary base are advantageously employed in equimolar amounts. A slight excess of auxiliary base, for example from 1.2 to 1.5 molar equivalents, based on VI, may be advantageous in certain cases.

Suitable auxiliary bases are tertiary alkylamines, pyridine, or alkali metal carbonates. Suitable solvents are, for example, chlorinated hydrocarbons, such as methylene chloride or 1,2-dichloroethane, aromatic hydrocarbons, such as toluene, xylene or chlorobenzene, ethers, such as diethyl ether, methyl tert-butyl ether, tetrahydrofuran or dioxane, polar aprotic solvents, such as acetonitrile, dimethylformamide or dimethyl sulfoxide, or esters, such as ethyl acetate, or mixtures of these.

If tricyclic benzoyl halides are employed as activated carboxylic acid components, it may be advantageous to cool the reaction mixture to 0-10°C when adding this reaction partner. The mixture is subsequently stirred at 20 - 100°C, preferably at 25 - 50°C, until the reaction has gone to completion. Work-up is carried out in a customary manner, for example by pouring the reaction mixture into water and extracting the product of value. Solvents which are suitable for this purpose are, in particular, methylene chloride, diethyl ether and ethyl acetate. The organic phase is dried and the solvent removed, and the crude ester can then be employed for the rearrangement without further purification.

The rearrangement of the esters VIII to give the compounds of the formula Iα is advantageously carried out at from 20 to 100°C in a solvent and in the presence of a base and, if appropriate, using a cyano compound as catalyst.

Solvents which may be used are, for example, acetonitrile, methylene chloride, 1,2-dichloroethane, dioxane, ethyl acetate, toluene or mixtures of these. Preferred solvents are acetonitrile and dioxane.

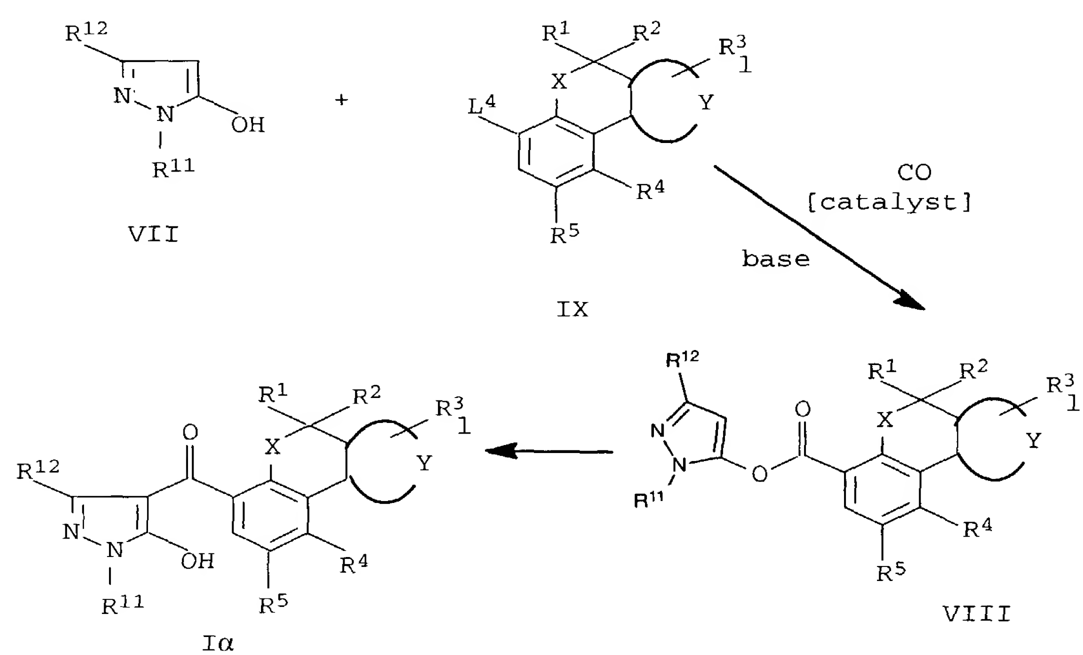
Suitable bases are tertiary amines, such as triethylamine, aromatic amines, such as pyridine, or alkali metal carbonates, such as sodium carbonate or potassium carbonate, which are preferably employed in equimolar amounts or in an up to four-fold excess, based on the ester. Preference is given to using triethylamine or alkali metal carbonate, preferably in double the equimolar ratio, based on the ester.

Suitable cyano compounds are inorganic cyanides, such as sodium cyanide or potassium cyanide, and organic cyano compounds, such as acetone cyanohydrin or trimethylsilyl cyanide. They are employed in an amount of from 1 to 50 mol percent, based on the ester. Preference is given to using acetone cyanohydrin or

trimethylsilyl cyanide, for example in an amount of from 5 to 15, preferably 10, mol percent, based on the ester.

Work-up may be carried out in a manner known per se. The reaction mixture is, for example, acidified using dilute mineral acid, such as 5% strength hydrochloric acid or sulfuric acid, and extracted with an organic solvent, for example methylene chloride or ethyl acetate. The organic extract can be extracted with 5-10% strength alkali metal carbonate solution, for example sodium carbonate or potassium carbonate solution. The aqueous phase is acidified and the resulting precipitate is filtered off with suction and/or extracted with methylene chloride or ethyl acetate, the extract being dried and concentrated.

However, it is also possible to generate the ester VIII in situ by reacting a pyrazole of the formula VII, or an alkali metal salt thereof, with a tricyclic benzene derivative of the formula IX in the presence of carbon monoxide, a catalyst and a base.



L^4 is a leaving group, such as halogen, for example chlorine, bromine or iodine, or sulfonate such as mesylate or triflate; preference is given to bromine or triflate.

If appropriate, the ester VIII reacts directly to give the tricyclic benzoylpyrazole derivative of the formula Iα.

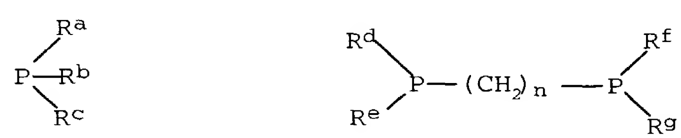
Suitable catalysts are palladium ligand complexes in which the palladium is present in oxidation state 0, metallic palladium, if appropriate applied to a support, and preferably palladium(II) salts. The reaction with palladium(II) salts and metallic palladium is preferably carried out in the presence of complex ligands.

A suitable palladium(0) ligand complex is, for example, tetrakis(triphenylphosphane)palladium.

Metallic palladium is preferably applied to an inert carrier, such as, for example, activated carbon, silica, alumina, barium sulfate or calcium carbonate. The reaction is preferably carried out in the presence of complex ligands, such as, for example, triphenylphosphane.

Suitable palladium(II) salts are, for example, palladium acetate and palladium chloride. Preference is given to carrying out the reaction in the presence of complex ligands such as, for example, triphenylphosphane.

Suitable complex ligands for the palladium ligand complexes, or complex ligands in whose presence the reaction with metallic palladium or palladium(II) salts is preferably carried out are tertiary phosphanes whose structure is represented by the following formulae:



where n is a number from 1 to 4 and the radicals R^a to R^g are C_1-C_6-alkyl, aryl-C_1-C_2-alkyl or preferably aryl. Aryl is, for example, naphthyl and unsubstituted or substituted phenyl such as, for example, 2-tolyl and in particular unsubstituted phenyl.

The complex palladium salts can be prepared in a manner known per se starting from commercially available palladium salts, such as palladium chloride or palladium acetate, and the corresponding phosphanes, such as, for example, triphenylphosphane or 1,2-bis(diphenylphosphano)ethane. A large number of complexed palladium salts is also commercially available. Preferred palladium salts are [(R)-(+)-2,2'-bis(diphenylphosphano)-1,1'-binaphthyl]palladium (II) chloride, bis(triphenylphosphane)palladium(II) acetate and in particular bis(triphenylphosphane)palladium(II) chloride.

The palladium catalyst is generally employed in a concentration of from 0.05 to 5 mol%, and preferably of 1-3 mol%.

Suitable bases are tertiary amines, such as, for example, N-methylpiperidine, ethyldiisopropylamine, 1,8-bisdimethylaminonaphthalene and in particular triethylamine. Also suitable are alkali metal carbonates, such as sodium carbonate or potassium carbonate. However, mixtures of potassium carbonate and triethylamine are also suitable.

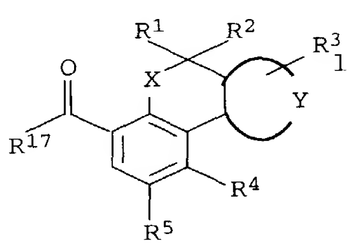
In general, from 2 to 4 molar equivalents, in particular 2 molar equivalents, of the alkali metal carbonate, and from 1 to 4 molar equivalents, in particular 2 molar equivalents, of the tertiary amine are employed, based on the tricyclic benzene derivative of the formula IX.

Suitable solvents are nitriles, such as benzonitrile and acetonitrile, amides, such as dimethylformamide, dimethylacetamide, tetra-C_1-C_4-alkylureas or N-methylpyrrolidone, and preferably ethers, such as tetrahydrofuran, methyl tert-butyl ether. Particular preference is given to using, as solvents, ethers such as 1,4-dioxane and dimethoxyethane.

The tricyclic benzoyl halides of the formula VIβ where L^3 = Cl, Br can be prepared in a manner known per se by reacting the tricyclic benzoic acids of the formula VIγ (≡ VIb) with halogenating agents such as thionyl chloride, thionyl bromide, phosgene, diphosgene, triphosgene, oxalyl chloride and oxalyl bromide.

In a known manner, the tricyclic benzoic acids of the formula VIγ (≡ VIb) can be prepared by acidic or basic hydrolysis from the corresponding esters VIc.

Tricyclic benzoic acid derivatives of the formula VI



VI

where:

X is oxygen, sulfur, S=O, $S(=O)_2$, CR^6R^7, NR^8 or a bond;

Y together with the two carbons to which it is attached forms a saturated, partially saturated or unsaturated 5- or 6-membered heterocycle which contains one to three identical or different heteroatoms selected from the following group: oxygen, sulfur or nitrogen;

R^1,R^2,R^6,R^7 are hydrogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkoxy or C_1-C_6-haloalkoxy;

R^3 is halogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkoxy or C_1-C_6-haloalkoxy;

R^4 is nitro, halogen, cyano, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkoxy, C_1-C_6-haloalkoxy, C_1-C_6-alkylthio, C_1-C_6-haloalkylthio, C_1-C_6-alkylsulfinyl, C_1-C_6-haloalkylsulfinyl, C_1-C_6-alkylsulfonyl, C_1-C_6-haloalkylsulfonyl, aminosulfonyl, N-(C_1-C_6-alkyl)-aminosulfonyl, N,N-di(C_1-C_6-alkyl)aminosulfonyl, N-(C_1-C_6-alkylsulfonyl)amino, N-(C_1-C_6-haloalkylsulfonyl)amino, N-(C_1-C_6-alkyl)-N-(C_1-C_6-alkylsulfonyl)amino or N-(C_1-C_6-alkyl)-N-(C_1-C_6-haloalkylsulfonyl)amino;

R^5 is hydrogen, C_1-C_6-alkyl or halogen;

R^8 is hydrogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkylcarbonyl, formyl, C_1-C_6-alkoxycarbonyl, C_1-C_6-haloalkoxycarbonyl, C_1-C_6-alkylsulfonyl or C_1-C_6-haloalkylsulfonyl;

l is 0, 1 or 2;

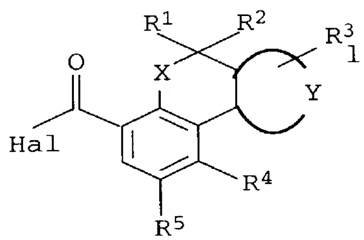
R^{17} is hydroxyl or a radical which can be removed by hydrolysis;

are novel.

Examples of radicals which can be removed by hydrolysis are alkoxy, phenoxy, alkylthio and phenylthio radicals which can be unsubstituted or substituted, halides, heteroaryl radicals which

are attached via nitrogen, amino and imino radicals which may be unsubstituted or substituted, etc.

Preference is given to tricyclic benzoyl halides VIa (VI where R^{17} = halogen)

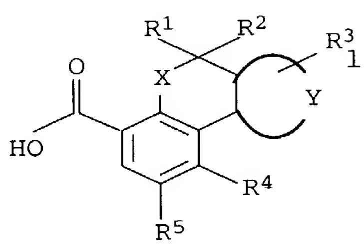


VIa

where the variables X, Y, R^1 to R^5 and l are as defined under formula VI and

Hal is halogen, in particular chloride or bromide.

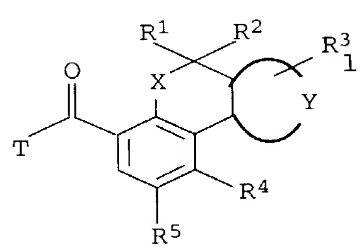
Preference is also given to tricyclic benzoic acids of the formula VIb (VI where R^{17} = hydroxyl; ≡ VIγ),



VIb

where the variables X, Y, R^1 to R^5 and l are as defined under formula VI.

Preference is also given to tricyclic benzoic esters of the formula VIc (VI where R^{17} = T = C_1-C_6-alkoxy),



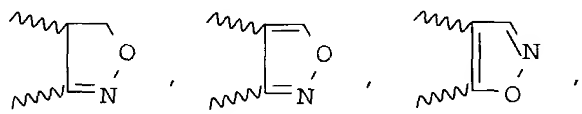
VIc

where the variables X, Y, R^1 to R^5 and l are as defined under formula VI and

T is C_1-C_6-alkoxy.

With respect to the variables X, Y, R^1 to R^5 and l, the particularly preferred embodiments of the tricyclic benzoic acid derivatives of the formulae VI, VIa, VIb and VIc correspond to those of the tricyclic benzoylpyrazole derivatives of the formula I.

Particular preference is given to the compounds VI, VIa, VIb and VIc where Y together with the two carbons to which it is attached forms the following heterocycles:

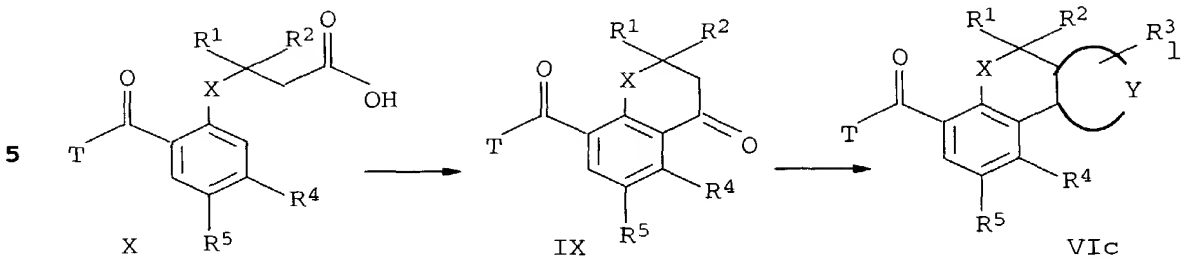


Here, extraordinary preference is given to the compounds VI, VIa, VIb and VIc where

R^4 is nitro, halogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkoxy, C_1-C_6-alkylthio or C_1-C_6-alkylsulfonyl; in particular C_1-C_6-alkylsulfonyl.

The tricyclic benzoic esters VIc can be obtained in different ways.

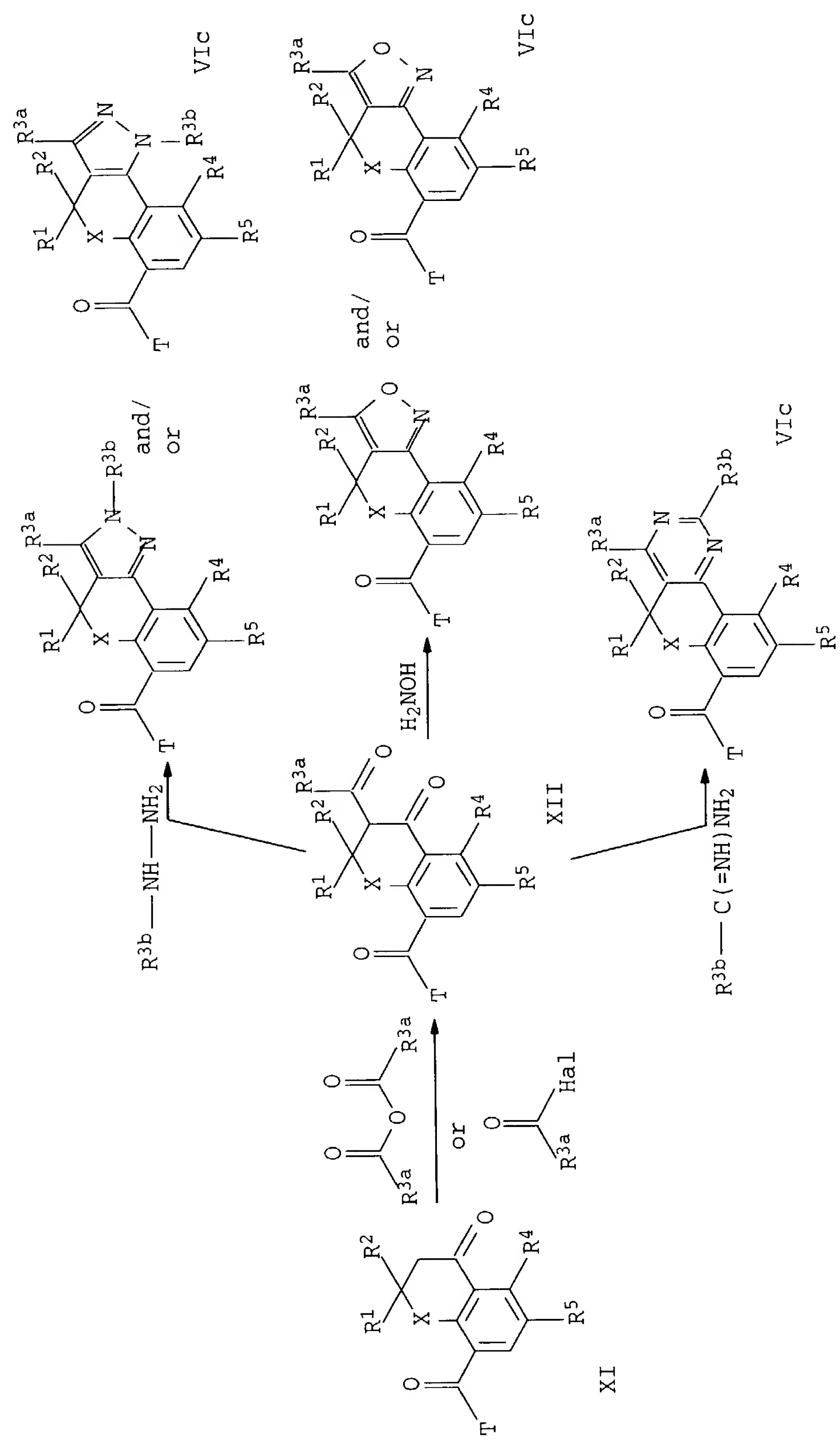
For example, benzoic esters of the formula X, which are prepared in a manner known per se (cf., for example, Chem. Pharm. Bull. 1985, 33 (8), 3336; Helv. Chim. Acta 1987, 70, 1326; J. Chem. Soc. Perkin Trans. 1972, 2019; J. Chem. Soc. Perkin Trans. 1991, 2763; Tetrahydron Asymmetry 1998, 9, 1137), can be cyclized to cyclic ketones of the formula XI (cf., for example, Chem. Ber. 1923, 56, 1819; J. Chem. Soc. Perkin I 1991, 2763; J. Med. Chem. 1988, 31, 230; Tetrahedron 1987, 43, 4549; Synlett 1991, 6, 443; Chem. Pharm. Bull. 1985, 33 (8), 3336). Analogously to known processes (cf., for example, J. Heterocyclic Chem. 1976, 13, 545; J. Heterocyclic Chem. 1972, 9, 1341; J. Org. Chem. 1978, 43, 3015; J. Chem. Soc. Perkin Trans. I 1978, 86; J. Org. Chem. 1986, 51, 2021), these can be converted into the tricyclic benzoic esters of the formula VIc.



Furthermore, it may be suitable to cyclize the cyclic ketone of the formula XI in a manner known per se (XII), for example using an anhydride or acid anhydride, if appropriate in the presence of catalytic amounts of a Lewis acid, such as boron trifluoride (cf., for example, Can. J. Chem. 1979, 57, 3292; J. Am. Chem. Soc. 1953, 75, 626), followed by reaction with a hydrazine (cf. A.R. Katritzky et al., Comprehensive Heterocyclic Chemistry, Vol. 5, p. 121, 277 - 280 (1984), Pergamon Press; J. Org. Chem. 1961, 26, 451; Org. Synth. 1949, 29, 54), where the resulting pyrazole radical can be modified further by customary processes.

Furthermore, the diketone XII can be reacted with hydroxylamine or equivalents thereof (cf. A.R. Katritzky et al., Comprehensive Heterocyclic Chemistry, Vol. 6, p. 61 - 64, 118 (1984), Pergamon Press; Chem. Ber. 1967, 100, 3326). This gives the corresponding isoxazole derivatives which can be modified further by customary processes.

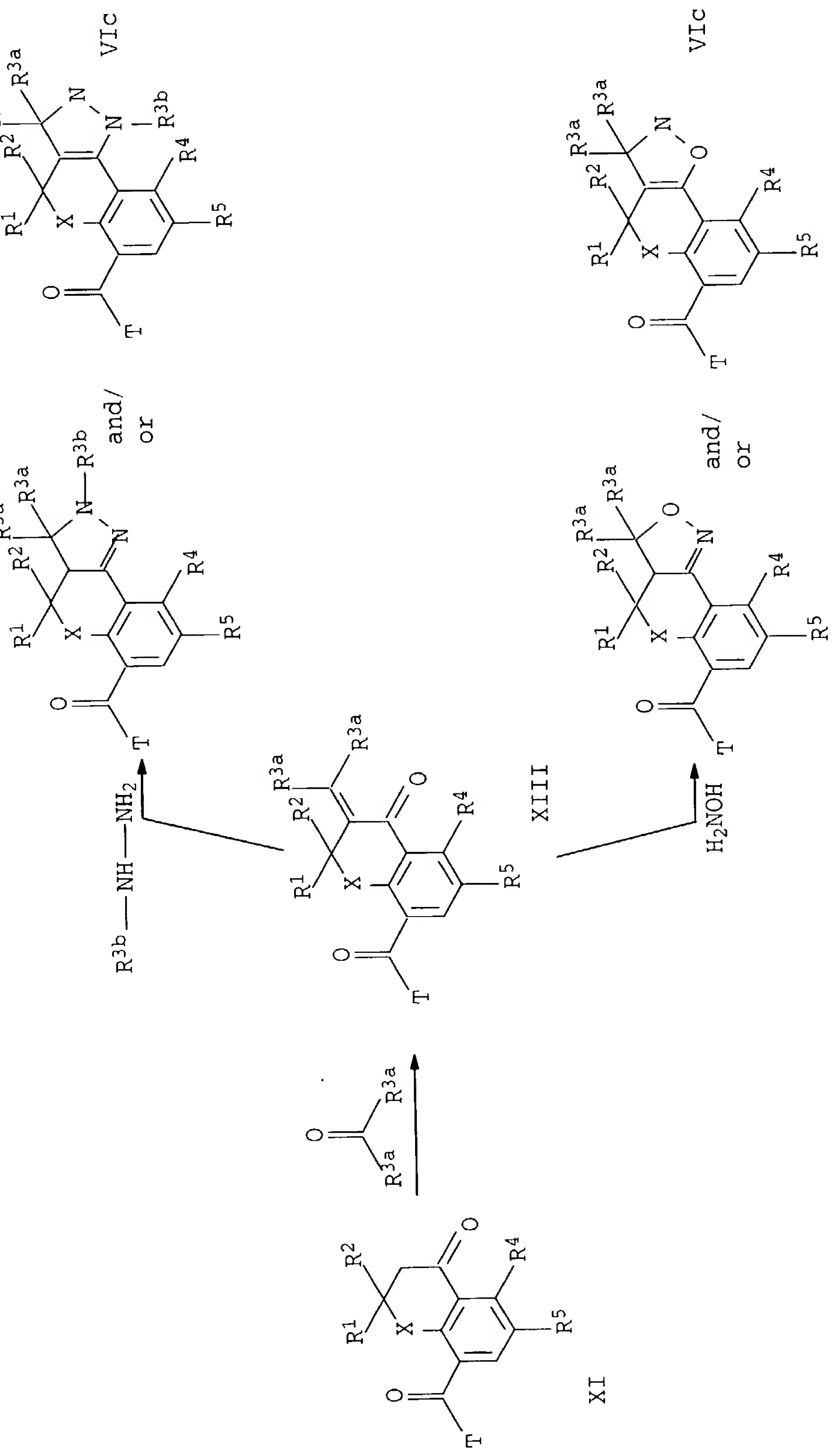
It is also possible to react the diketone XII with amidines (cf., for example, A.R. Katritzky et al., Comprehensive Heterocyclic Chemistry, Vol. 3, p. 112 - 114 (1924), Pergamon Press; J. Chem. Soc. C 1967, 1922; Org. Synth. 1963, IV, 182). If required, the resulting pyrimidine derivatives can be modified further by customary processes.


XI
XII
VIc
VIc
VIc
and/ or
and/ or
or
Hal
H2NOH
R3b—NH—NH2
R3b—C(=NH)NH2

In the reactions mentioned above, it is also possible to employ, instead of the diketone XII, equivalents thereof, such as enol ethers or enamines, which can be prepared analogously to known processes.

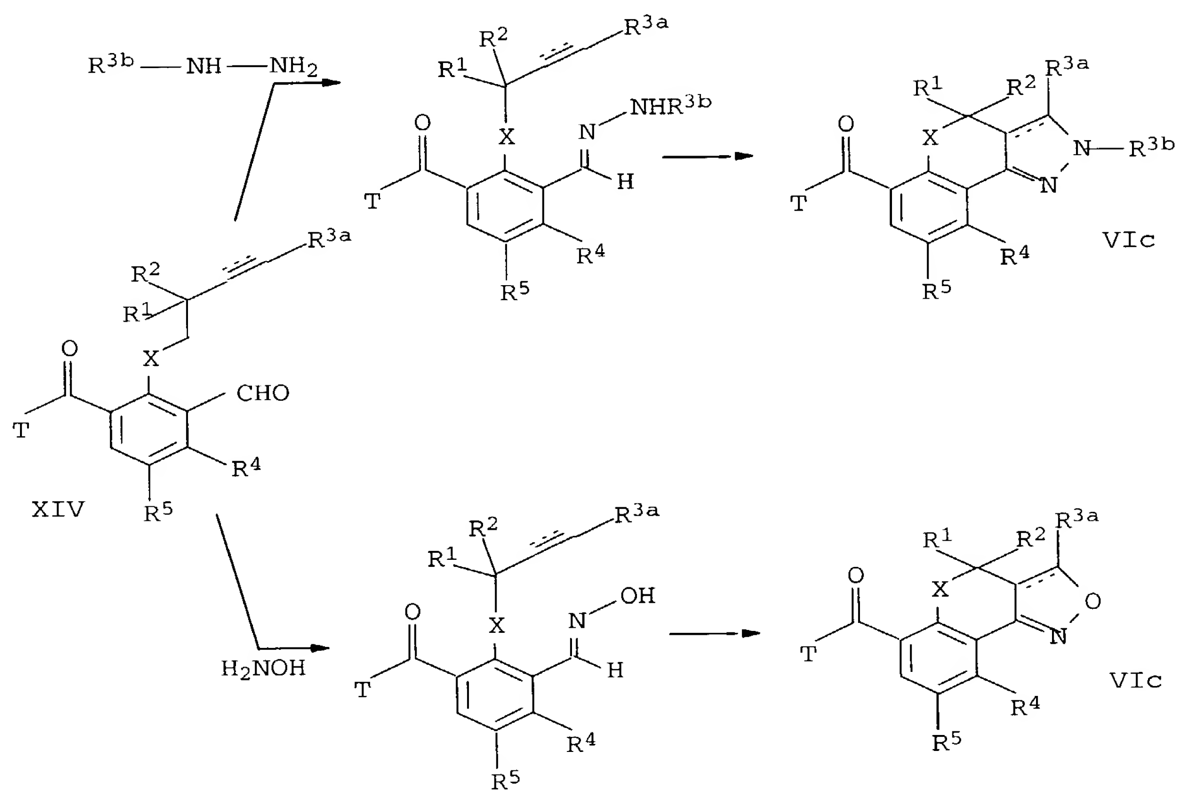
It may also be possible to react the cyclic ketone of the formula XI analogously to known processes with an aldehyde or ketone to give (XIII) (cf., for example, Tetrahedron Lett. 1978, 2111; Tetrahedron Lett. 1981, 5251; Chem. Ber. 1960, 2294; J. Chem. Soc. Perkin Trans. 1, 1991, 1467; Tetrahedron Lett. 1992, 8091). The resulting unsaturated cyclic ketone of the formula XIII can be reacted with a hydrazine in a manner known per se (cf., for example, A.R. Katritzky et al. Comprehensive Heterocyclic Chemistry, Vol. 2, 6 (1984), Pergamon Press; J. Heterocyclic Chem. 1969, 533; J. Heterocyclic Chem. 1968, 853), where the resulting pyrazoline can be modified further by customary processes.

It is furthermore possible to react the unsaturated cyclic ketone of the formula XIII with hydroxylamine or equivalents thereof (Z. Chem. 1980, 20, 19). This gives the corresponding isoxazoline derivatives, which can be modified further by customary processes.


XI
XIII
VIc
VIc
and/or
and/or
R^{3b}—NH—NH_2
H_2NOH

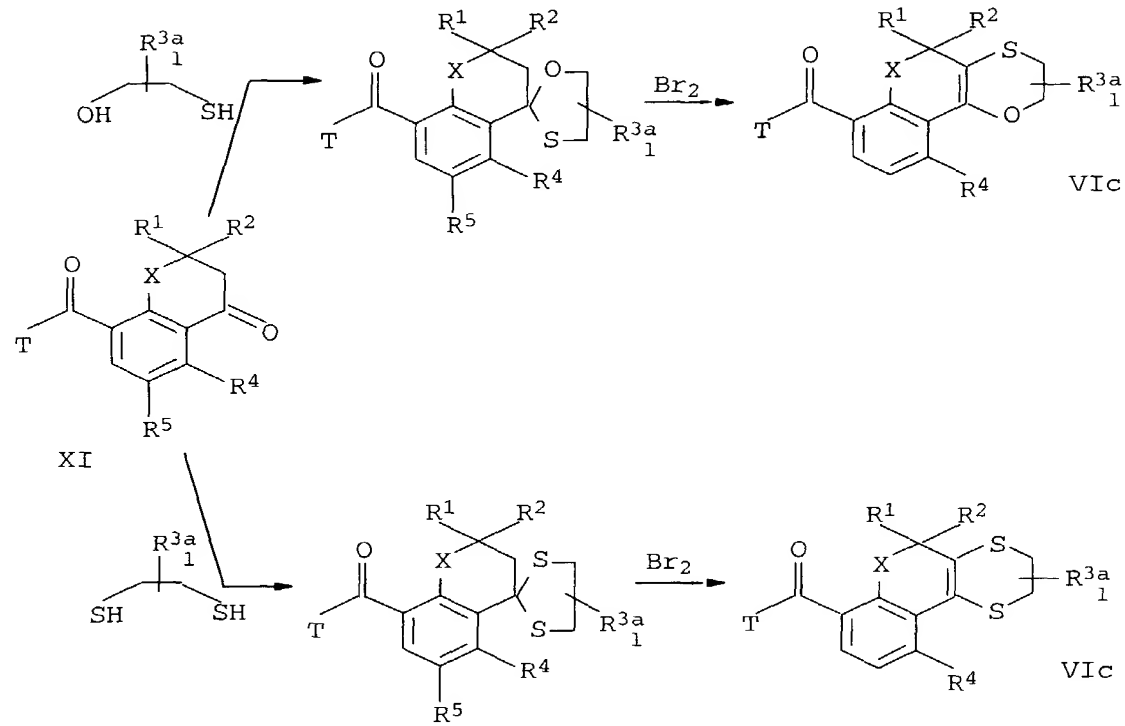
Furthermore, it is possible to convert aldehydes of the formula XIV, which can be prepared in a manner known per se, analogously to processes known from the literature by reaction with a hydrazine or hydroxylamine (or equivalents of these) into the corresponding hydrazones or oximes (cf., for example, Synth. Commun. 1990, 20, 1373; J. Org. Chem. 1980, 45, 3756). These in turn can be converted in a manner known per se into the corresponding 1,3-dipoles, which then react in a [3 + 2]-cycloaddition to give the compounds VIc (cf., for example, Synth. Commun. 1990, 20, 1373; EP-A 386 892; J. Org. Chem. 1980, 45, 3756; Tetrahedron Lett. 1981, 22, 1333.)

The resulting pyrazoles or pyrazolines and isoxazoles or isoxazolines can be modified further by customary processes.



It is also possible to react the cyclic ketone of the formula XI with a dithiol or a "mixed alcohol" analogously to processes known from the literature (cf., for example, T.W. Greene et al., Protective Groups in Organic Synthesis, John Wiley & Sons, 133-140), and to subject it subsequently to a rearrangement in the presence of bromine or a suitable Lewis acid, such as, for

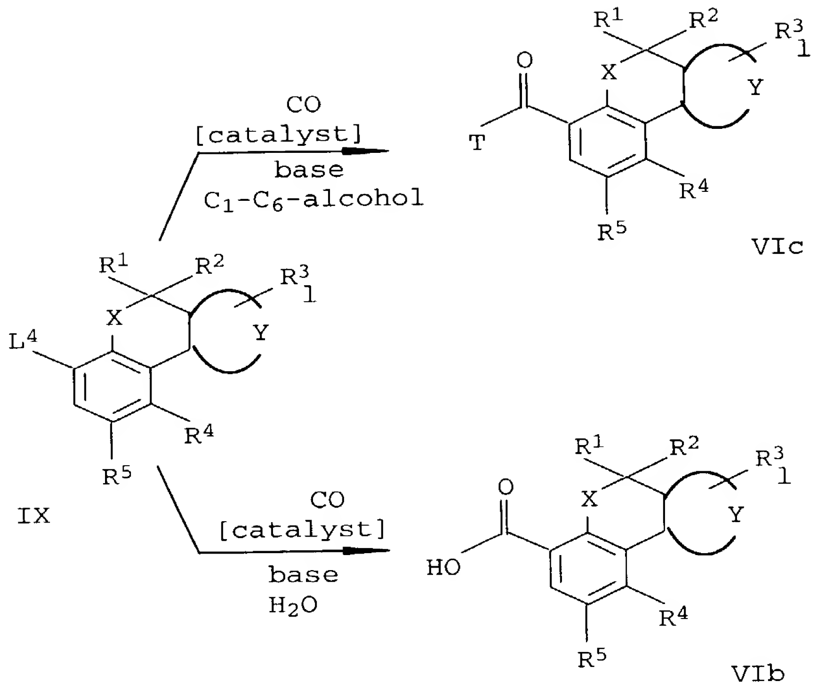
example, tellurium tetrachloride (cf. Tetrahedron 1991, 47, 4187; Synthesis 1991, 223; J. Chem. Soc. Chem. Commun. 1985, 1645).



The resulting heterocycles can, if desired, be modified further by processes known per se.

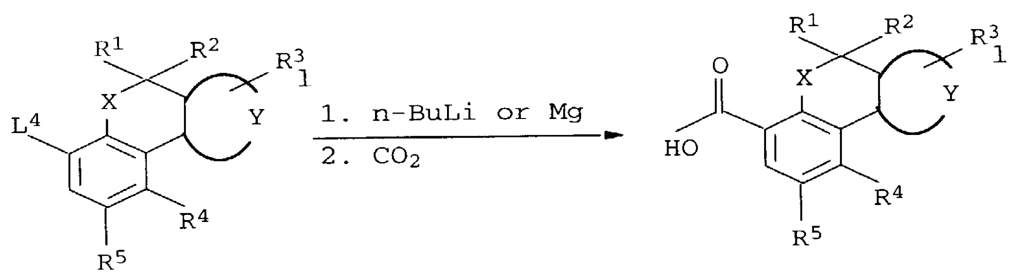
The abovementioned substituents R^{3a} are hydrogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl, hydroxyl, C_1-C_6-alkoxy or C_1-C_6-haloalkoxy; furthermore, the abovementioned radicals R^{3b} are hydrogen, C_1-C_6-alkyl or C_1-C_6-haloalkyl.

The tricyclic benzoic esters of the formula VIc or the tricyclic benzoic acids of the formula VIb can be obtained by reacting a tricyclic benzene derivative of the formula IX with a C_1-C_6-alcohol or water in the presence of carbon monoxide, a catalyst and a base. In general, the conditions mentioned under process F apply.



L^4 is a leaving group, such as halogen, for example chlorine, bromine or iodine, or sulfate, such as mesylate or triflate; preference is given to bromine or triflate.

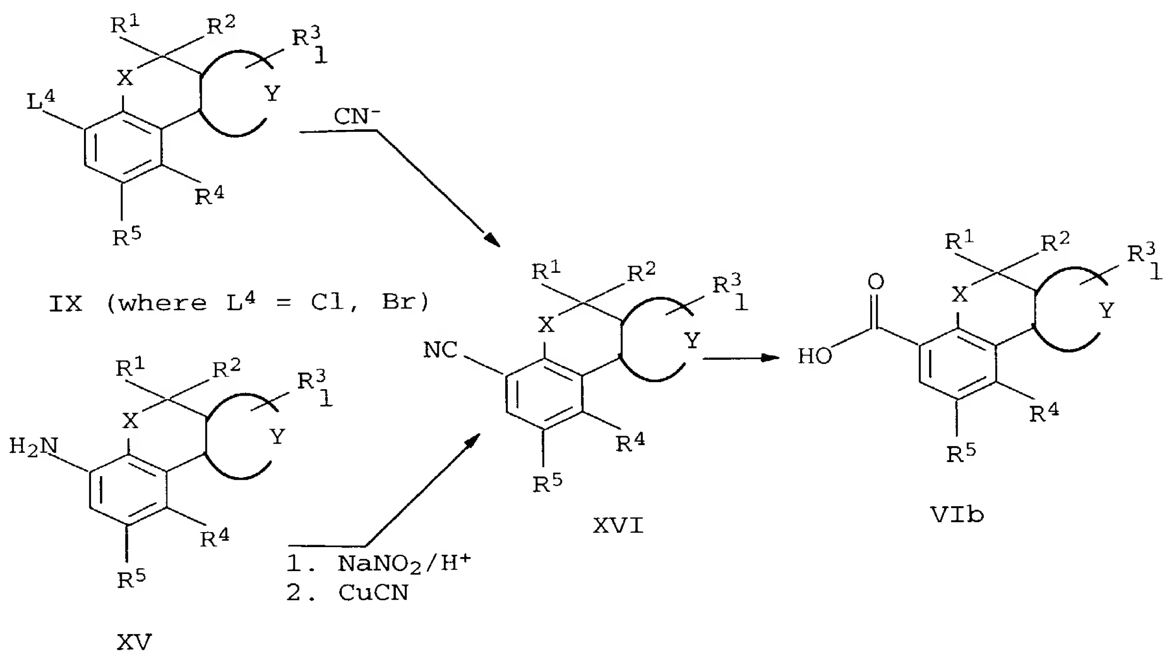
Furthermore, the tricyclic benzoic acids of the formula VIb can be obtained by converting a tricyclic benzene derivative of the formula IX where L^4 is halogen, such as chlorine or bromine, in particular bromine, by reaction with, for example, n-butyllithium or magnesium into the metalated derivative, followed by quenching with carbon dioxide (cf., for example, J. Org. Chem. 1990, 55, 773; Angew. Chem. Int. Ed. 1969, 8, 68).



IX (with L^4 = Cl, Br) VIb

It is also possible to obtain the tricyclic benzoic acids VIb by hydrolyzing the corresponding nitriles, analogously to processes known from the literature. The nitriles for their part can be

obtained by halogen/nitrile exchange or by Sandmeyer reaction from the corresponding anilines XV.



The compounds of the formula IX,

where:

X	is oxygen, sulfur, S=O, $S(=O)_2$, CR^6R^7, NR^8 or a bond;
Y	together with the two carbons to which it is attached forms a saturated, partially saturated or unsaturated 5- or 6-membered heterocycle which contains one to three identical or different heteroatoms selected from the following group: oxygen, sulfur or nitrogen;
R^1,R^2,R^6,R^7	are hydrogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkoxy or C_1-C_6-haloalkoxy;
R^3	is halogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkoxy or C_1-C_6-haloalkoxy;
R^4	is nitro, halogen, cyano, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkoxy, C_1-C_6-haloalkoxy, C_1-C_6-alkylthio, C_1-C_6-haloalkylthio, C_1-C_6-alkylsulfinyl, C_1-C_6-haloalkylsulfinyl,

C_1-C_6-alkylsulfonyl, C_1-C_6-haloalkylsulfonyl, aminosulfonyl, N-(C_1-C_6-alkyl)aminosulfonyl, N,N-di(C_1-C_6-alkyl)aminosulfonyl, N-(C_1-C_6-alkylsulfonyl)amino, N-(C_1-C_6-haloalkylsulfonyl)amino, N-(C_1-C_6-alkyl)-N-(C_1-C_6-alkylsulfonyl)amino or N-(C_1-C_6-alkyl)-N-(C_1-C_6-haloalkylsulfonyl)amino;

R^5 is hydrogen, C_1-C_6-alkyl or halogen;

R^8 is hydrogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkylcarbonyl, formyl, C_1-C_6-alkoxycarbonyl, C_1-C_6-haloalkoxycarbonyl, C_1-C_6-alkylsulfonyl or C_1-C_6-haloalkylsulfonyl;

l is 0, 1 or 2;

L^4 is halogen, C_1-C_6-alkylsulfonyloxy, C_1-C_6-haloalkylsulfonyloxy or phenylsulfonyloxy, where the phenyl ring of the lastmentioned radical may be unsubstituted or partially or fully halogenated and/or may carry one to three of the following radicals: nitro, cyano, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_4-alkoxy or C_1-C_4-haloalkoxy;

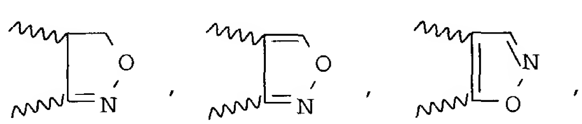
are novel.

Preference is given to compounds of the formula IX where L^4 is halogen, in particular bromine.

The particularly preferred embodiments of the compounds of the formula IX with respect to the variables X, Y, R^1 to R^5 and l correspond to those of the tricyclic benzoylpyrazole derivatives of the formula I.

Particular preference is given to the compounds of the formula IX where

Y together with the two carbons to which it is attached forms the following heterocycles:



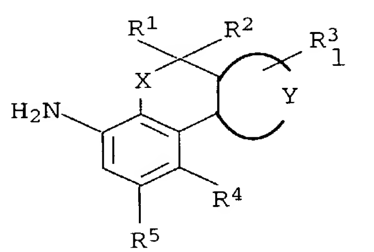
Here, extraordinary preference is given to the compounds IX where

R^4 is nitro, halogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkoxy, C_1-C_6-alkylthio or C_1-C_6-alkylsulfonyl; in particular C_1-C_6-alkylsulfonyl.

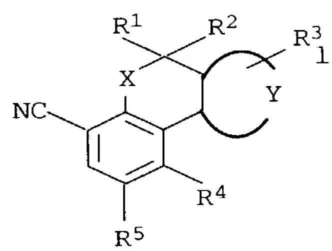
The compounds of the formula IX can be obtained in different ways, the fused system, for example, can be constructed analogously to the processes described for the compounds of the formula VIc.

However, it is also possible to construct the fused system from a suitable parent compound (analogously to the processes described for compounds of the formula VIc) and to introduce L^4 = halogen subsequently by customary halogenating reactions.

The anilines of the formula XV and the nitriles of the formula XVI



XV



XVI

where:

X is oxygen, sulfur, S=O, $S(=O)_2$, CR^6R^7, NR^8 or a bond;

Y together with the two carbons to which it is attached forms a saturated, partially saturated or unsaturated 5- or 6-membered heterocycle which contains one to three identical or different heteroatoms selected from the following group: oxygen, sulfur or nitrogen;

R^1,R^2,R^6,R^7 are hydrogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkoxy or C_1-C_6-haloalkoxy;

R^3 is halogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkoxy or C_1-C_6-haloalkoxy;

R^4 is nitro, halogen, cyano, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkoxy, C_1-C_6-haloalkoxy, C_1-C_6-alkylthio, C_1-C_6-haloalkylthio, C_1-C_6-alkylsulfinyl, C_1-C_6-haloalkylsulfinyl, C_1-C_6-alkylsulfonyl, C_1-C_6-haloalkylsulfonyl, aminosulfonyl, N-(C_1-C_6-alkyl)aminosulfonyl, N,N-di(C_1-C_6-alkyl)aminosulfonyl, N-(C_1-C_6-alkylsulfonyl)amino, N-(C_1-C_6-haloalkylsulfonyl)amino, N-(C_1-C_6-alkyl)-N-(C_1-C_6-alkylsulfonyl)amino or N-(C_1-C_6-alkyl)-N-(C_1-C_6-haloalkylsulfonyl)amino;

R^5 is hydrogen, C_1-C_6-alkyl or halogen;

R^8 is hydrogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkylcarbonyl, formyl, C_1-C_6-alkoxycarbonyl, C_1-C_6-haloalkoxycarbonyl, C_1-C_6-alkylsulfonyl or C_1-C_6-haloalkylsulfonyl;

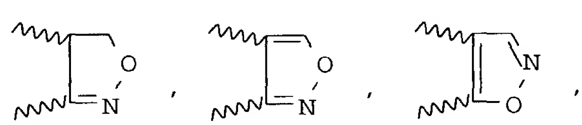
l is 0, 1 or 2;

are also novel.

The particularly preferred embodiments of the compounds of the formulae XV and XVI with respect to the variables X, Y, R^1 to R^5 and l correspond to those of the tricyclic benzoylpyrazole derivatives of the formula I.

Particular preference is given to the compounds of the formula XV or XVI where

Y together with the two carbons to which it is attached forms the following heterocycles:



Here, extraordinary preference is given to the compounds XV or XVI where

R^4 is nitro, halogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkoxy, C_1-C_6-alkylthio or

C_1-C_6-alkylsulfonyl; in particular C_1-C_6-alkylsulfonyl.

The compounds of the formula XV can be obtained in different ways; for example, the fused system can be constructed analogously to the processes described for the compounds of the formula VIc.

However, it is also possible to construct the fused system from a suitable parent compound (analogously to the processes described for the compounds of the formula VIc) and to introduce a nitro group subsequently by nitration para to R^4, analogously to processes known from the literature, and to convert this group in a manner known per se by reduction into the amino group.

If appropriate, it may be advantageous in the synthesis variants described above to introduce protective groups for certain functionalities if the functionalities are not compatible with the reaction conditions required.

The selection of the protective groups depends both on the reaction conditions and on the structure of the molecule. The protective groups, their introduction and their removal are generally known from the literature (cf., for example, T.W. Greene et al., "Protective Groups in Organic Synthesis", 2nd edition, Wiley, New York, 1991), and they can be employed analogously to processes known from the literature.

Furthermore, it may be necessary to carry out a combination of the synthesis variants described above.

It is also possible to introduce further substituents or to modify the substituents present by electrophilic, nucleophilic, free-radical or organometallic reactions and by oxidation or reduction reactions.

Preparation Examples:

1. (5-Phenylcarbonyloxy-1-methyl-1H-pyrazol-4-yl)-(8-methylsulfonyl-3a,4-dihydro-3H-indeno[1,2-c]isoxazol-5-yl)methanone (compound 2.2)

2-Allyl-6-chlorobenzaldehyde

Under an atmosphere of protective gas, a solution of 10.89 g (0.107 mol) of trimethylethylenediamine in 50 ml of anhydrous tetrahydrofuran was cooled to -10°C and admixed dropwise with

66.6 ml of a 1.6 molar solution of n-butyllithium in hexane (0.107 mol). After 10 minutes, 15 g (0.107 mol) of 6-chlorobenzaldehyde in 70 ml of tetrahydrofuran were added dropwise, and the mixture was admixed with a further 0.214 mol of n-butyllithium in hexane (146.8 ml) and stirred at 0°C for 2.5 hours. The mixture was cooled to -20°C, 12.42 g (0.139 mol) of copper(I) cyanide were added, the mixture was stirred at -10°C for 30 minutes, and 28.42 g of allyl bromide in 100 ml of tetrahydrofuran were then added dropwise. The mixture was stirred at 0°C for another 2.5 hours, and 230 ml of saturated ammonium chloride solution were then added dropwise. The resulting solid was separated off and the aqueous phase was extracted with diethyl ether. The combined organic phases were then washed with saturated ammonium chloride solution and dried, and the solvent was removed under reduced pressure. This gave 17.0 g of 2-allyl-6-chlorobenzaldehyde (89%) in the form of a dark oil.
^{1}H NMR ($CDCl_3$, δ in ppm): 3.73 (d, 2H); 5.05 (dd, 2H); 5.96 (m, 1H); 7.05-7.48 (m, 3H); 10.58 (s, 1H).

2-Allyl-6-chlorobenzaldehyde oxime

5.58 g of sodium bicarbonate were added to a solution of 4.62 g of hydroxylamine hydrochloride in 50 ml of water, and the mixture was cooled to 0°C. A solution of 9.7 g (44.32 mmol) of 2-allyl-6-chlorobenzaldehyde in 50 ml of methanol was then added dropwise, and the mixture was stirred at room temperature overnight. The methanol was subsequently removed under reduced pressure and the residue was stirred into 300 ml of water. The aqueous phase was extracted with diethyl ether and the combined organic phases were washed with saturated ammonium chloride solution and dried, and the solvent was removed. This gave 8.7 g (quantitative) of 2-allyl-6-chlorobenzaldehyde oxime in the form of a viscous oil.
^{1}H NMR ($CDCl_3$, δ in ppm): 3.58 (d, 2H); 5.02 (2d, 2H); 5.95 (m, 1H); 7.08-7.36 (m, 3H); 8.49 (s, 1H).

8-Chloro-3a,4-dihydro-3H-indeno[1,2-c]isoxazole

At room temperature, 37.0 ml of a sodium hypochlorite solution (12.5% of active chlorine) were added dropwise to a solution of 8.4 g (42.9 mmol) of 2-allyl-6-chlorobenzaldehyde oxime in 100 ml of methylene chloride, and a spatula tip of sodium acetate was added. The mixture was stirred at room temperature for 2 hours, the organic phase was separated off, the aqueous phase was extracted with methylene chloride and

the combined organic phases were washed with saturated ammonium chloride solution. The organic phase was dried and the solvent was removed. This gave 7.0 g (94%) of 8-chloro-3a,4-dihydro-3H-indeno-[1,2-c]isoxazole in the form of a viscous oil.
^{1}H NMR ($CDCl_3$, δ in ppm): 2.81 (dd, 1H); 3.24 (dd, 1H); 3.78-4.03 (s, 2H); 4.78 (t, 1H); 7.23-7.41 (m, 3H).

8-Methylthio-3a,4-dihydro-3H-indeno[1,2c]isoxazole

At room temperature, 3.6 g (52.0 mmol) of sodium thiomethoxide were added to a solution of 5.0 g (25.8 mmol) of 8-chloro-3a,4-dihydro-3H-indeno-[1,2-c]isoxazole in 60 ml of N-methylpyrrolidone, and the mixture was stirred overnight. The mixture was subsequently stirred into 800 ml of water, the aqueous phase was extracted with diethyl ether, the combined organic phases were washed with saturated ammonium chloride solution and dried, and the solvent was removed. This gave 4.6 g (87%) of 8-methylthio-3a,4-dihydro-3H-indeno[1,2-c]isoxazole in the form of a dark brown solid.
^{1}H NMR ($CDCl_3$, δ in ppm): 2.54 (s, 3H); 2.78 (dd, 1H); 3.21 (dd, 1H); 3.72-3.93 (s, 2H); 4.64 (t, 1H); 7.09-7.38 (m, 3H).

5-Bromo-8-methylthio-3a,4-dihydro-3H-indeno[1,2-c]isoxazole

120 ml of sulfuric acid (98 percent strength) were cooled to 0°C, and 11.2 g (54.8 mmol) of 8-methylthio-3a,4-dihydro-3H-indeno[1,2-c]isoxazole were added a little at a time. 9.2 g (57.5 mmol) of bromine were then added dropwise, and stirring was continued at 0°C for another 2 hours. The resulting solution was poured into 2 l of a mixture of water and ice, this mixture was stirred for 1.5 hours and the precipitated solid was filtered off with suction and then washed and dried. This gave 11.4 g (73%) of 5-bromo-8-methylthio-3a,4-dihydro-3H-indeno[1,2-c]isoxazole of a brown solid having a m.p. of 127-135°C.
^{1}H NMR ($CDCl_3$, δ in ppm): 2.53 (s, 3H); 2.71 (dd, 1H); 3.24 (dd, 1H); 3.81-4.02 (s, 2H); 4.71 (t, 1H); 7.01 (d, 1H); 7.47 (d, 1H).

5-Bromo-8-methylsulfonyl-3a,4-dihydro-3H-indeno[1,2-c]-isoxazole

A solution of 11.2 g (39.4 mmol) of 5-bromo-8-methylthio-3a,4-dihydro-3H-indeno[1,2-c]isoxazole and 1.55 g of sodium tungstate in 250 ml of toluene and 50 ml

of glacial acetic acid was heated to 70°C and mixed dropwise with 10.73 g (39 percent strength, 86.8 mmol) of hydrogen peroxide. Stirring was continued at 70°C for another 3 hours, and a solid precipitated out. The mixture was allowed to cool to room temperature and stirred into 1 l of water, and the white solid was filtered off with suction. The organic phase of the filtrate was separated off and the aqueous phase was extracted with ethyl acetate. The combined organic phases were washed with water and dried, and the solvent was removed. This gave a viscous brown oil which was stirred with hexane/ethyl acetate (4:1). The resulting precipitate was filtered off with suction and combined with the solid obtained above. This gave 7.3 g (59%) of 5-bromo-8-methylsulfonyl-3a,4-dihydro-3H-indeno[1,2-c]-isoxazole.
^{1}H-NMR (d^6-DMSO, δ in ppm): 2.93 (dd, 1H); 3.23 (dd, 1H); 3.41 (s, 3H); 3.94 (dd, 1H); 4.16 (m, 1H); 4.81 (t, 1H); 7.82 (d, 1H); 8.03 (d, 1H).

(5-Hydroxy-1-methyl-1H-pyrazol-4-yl)-(8-methylsulfonyl-3a,4-dihydro-3H-indeno[1,2-c]isoxazol-5-yl)methanone (compound 2.1)

0.62 g (6.33 mmol) of 5-hydroxy-1-methylpyrazole, 1.75 g (12.66 mmol) of dry potassium carbonate, 1.28 g (12.67 mmol) of triethylamine and 0.22 g (0.30 mmol) of bis-(triphenylphosphane)palladium dichloride were added to a suspension of 2.0 g (6.33 mmol) of 5-bromo-8-methylsulfonyl-3a,4-dihydro-3H-indeno[1,2-c]-isoxazole in 100 ml of dioxane. In a miniautoclave, a carbon monoxide pressure of 20 bar was applied, the mixture was stirred for 5 minutes and the autoclave was vented. This procedure was repeated 3 times. The autoclave was subsequently heated to 130°C, a carbon monoxide pressure of 20 bar was applied once more and the mixture was stirred for 24 hours. After cooling and venting, the solvent was removed, and the residue was taken up in water, adjusted to pH 11 and washed with methylene chloride. The mixture was subsequently acidified to pH 4 using 10 percent strength hydrochloric acid and extracted with methylene chloride. The combined organic phases were washed with saturated ammonium chloride solution and dried, and the solvent was removed. This gave 0.58 g (25%) of (5-hydroxy-1-methyl-1H-pyrazol-4-yl)-(8-methylsulfonyl-3a,4-dihydro-3H-indeno[1,2-c]isoxazole)-methanone in the form of a dark oil.
^{1}H NMR ($CDCl_3$, δ in ppm): 3.03 (dd, 1H); 3.42 (s, 3H); 3.40

(m, 1H); 3.51 (s, 3H); 4.05 (m, 2H); 4.85 (t, 1H); 7.57 (s, 1H); 7.92 (d, 1H); 8.22 (d, 1H).

(5-Phenylcarbonyloxy-1-methyl-1H-pyrazol-4-yl)-(8-methylsulfonyl-3a,4-dihydro-3H-indeno[1,2-c]isoxazol-5-yl)methanone (compound 2.2)

Under an atmosphere of protective gas, 0.18 g of triethylamine and 0.26 g (1.82 mmol) of benzoyl chloride in 10 ml of tetrahydrofuran were added at 0°C to a suspension of 0.55 g (1.52 mmol) of (5-hydroxy-1-methyl-1H-pyrazol-4-yl)-(8-methylsulfonyl-3a,4-dihydro-3H-indeno[1,2-c]-isoxazol-5-yl)methanone in 10 ml of tetrahydrofuran. The mixture was stirred overnight at room temperature, the solvent was removed, the residue was taken up in ethyl acetate, washed with water and dried, and the solvent was removed. The crude product was purified by silica gel chromatography (mobile phase: ethyl acetate: hexane = 1:1). This gave 0.22 g (31%) of (5-phenylcarbonyloxy-1-methyl-1H-pyrazol-4-yl)-(8-methylsulfonyl-3a,4-dihydro-3H-indeno[1,2-c]isoxazol-5-yl)methanone in the form of a yellow solid having a m.p. of 86-93°C.
^{1}H NMR ($CDCl_3$, δ in ppm): 3.22 (s, 3H); 3.34 (m, 2H); 3.81 (s, 3H); 3.98 (m, 2H); 4.81 (t, 1H); 7.20 - 8.21 (m, 8H).

2. 4-(2-Methyl-9-chloro-[1]-thiochromano[4,3-c]pyrazol-6-yl)carbonyl-5-hydroxy-1-methyl-1H-pyrazole (compound 3.1)

Methyl 2-chlorosulfonyl-4-chlorobenzoate

At from 0 to 5°C, a solution of 60.9 g (0.88 mol) of sodium nitrite in 100 ml of water was added dropwise to a solution of 139 g (0.75 mol) of methyl 2-amino-4-chlorobenzoate in 400 ml of concentrated hydrochloric acid and the mixture was stirred at 0°C for another hour.
In a second apparatus, 3 g of copper(II) chloride, 3 g of benzyltriethylammonium chloride, 10 ml of water and 400 ml of 1,2-dichloroethane were combined and 64 g (1 mol) of sulfur dioxide were introduced.
The diazonium salt described above was subsequently added at from 10 to 15°C, and the mixture was slowly heated to 50°C. A further 54 g (0.84 mol) of sulfur dioxide were then introduced, and stirring was continued at 50°C for another 30 minutes. After cooling, 7.4 g (0.1 mol) of chlorine gas were then introduced at room temperature, stirring was continued for 15 minutes and the phases which had formed were then separated. The organic phase was dried and the solvent was

removed. This gave 207 g of methyl 2-chlorosulfonyl-4-chlorobenzoate.
^1H NMR ($CDCl_3$, δ in ppm): 4.00 (s, 3H); 7.75 (m, 2H); 8.18 (m, 1H)

Methyl 2-mercapto-4-chlorobenzoate

Over a period of 1.5 hours, 243.5 g (3.7 mol) of zinc powder were added a little at a time to a suspension of 205 g (0.75 mol) of methyl 2-chlorosulfonyl-4-chlorobenzoate in 1 l of concentrated hydrochloric acid and 375 g of ice. The mixture was stirred for another 3 hours and slowly heated to 70°C. After 2 hours at this temperature, the mixture was cooled. The reaction mixture was allowed to stand at room temperature for 12 hours and then extracted with ethyl acetate, the combined organic phases were dried and the solvent was removed. This gave 125.4 g (83%) of methyl 2-mercapto-4-chlorobenzoate.
^1H NMR ($CDCl_3$, δ in ppm): 3.95 (s, 3H); 4.88 (s, 1H); 7.10 (m, 1H); 7.30 (m, 1H); 7.96 (d, 1H).

Methyl 2-(2-hydroxycarbonyleth-1-yl)thio-4-chlorobenzoate

179.5 g (1.3 mol) of potassium carbonate and, a little at a time, 94.5 g (0.62 mol) of 3-bromopropionic acid were added to a solution of 125.4 g (0.62 mol) of methyl 2-mercapto-4-chlorobenzoate in 1.5 l of acetone, and the reaction mixture was stirred at room temperature for 12 hours. The solvent was distilled off, the residue was taken up in water and the mixture was extracted with diethyl ether. The aqueous phase was then made acidic using concentrated hydrochloric acid, and the resulting precipitate was filtered off with suction and dried. This gave 150 g (88%) of methyl 2-(2-hydroxycarbonyleth-1-yl)thio-4-chlorobenzoate.
M.p.: 133 to 136°C

Methyl 5-chloro-4-oxothiochromane-8-carboxylate

At 70°C, 50 g (0.18 mol) of methyl 2-(2-hydroxycarbonyleth-1-yl)thio-4-chlorobenzoate were added to 500 g of polyphosphoric acid, and the mixture was stirred for a further 30 minutes. The reaction mixture was then stirred into water and the resulting precipitate was filtered off with suction and dried. This gave 41.1 g (88%) of methyl 5-chloro-4-oxothiochromane-8-carboxylate.

^1H NMR ($CDCl_3$, δ in ppm): 3.08 (m, 4H); 3.96 (s, 3H); 7.14 (d, 1H); 7.95 (d, 1H).

Methyl 5-chloro-3-(N,N-dimethylaminomethylidene)-4-oxothiochromane-8-carboxylate

30 g (0.078 mol) of methyl 5-chloro-4-oxothiochromane-8-carboxylate in 300 ml of N,N-dimethylformamide dimethyl acetal were refluxed for 6 hours. Volatile components were then distilled off, the residue was taken up in methylene chloride and the organic phase was washed with water. Drying and removal of the solvent gave 35.3 g (97%) of methyl 5-chloro-3-(N,N-dimethylaminomethylidene)-4-oxothiochromane-8-carboxylate.
^1H NMR ($CDCl_3$, δ in ppm): 3.18 (s, 6H); 3.80 (s, 2H); 3.95 (s, 3H); 7.24 (d, 1H); 7.64 (s, 1H); 7.82 (d, 1H).

2-Methyl-6-methoxycarbonyl-9-chloro-[1]-thiochromano[4,3-c]-pyrazole

1.3 g (29.2 mmol) of methylhydrazine were added dropwise to a solution of 7.0 g (22.5 mmol) of methyl 5-chloro-3-(N,N-dimethylaminomethylidene)-4-oxothiochromane-8-carboxylate in 700 ml of ethanol, and the mixture was refluxed for 2 hours. The solvent was removed and the residue was chromatographed over silica gel using ethyl acetate/cyclohexane (2:3) as mobile phase. This gave 4.0 g (60%) of 2-methyl-6-methoxycarbonyl-9-chloro-[1]-thiochromano[4,3-c]pyrazole.
^1H NMR ($CDCl_3$, δ in ppm): 3.76 (s, 2H); 3.95 (s, 3H); 4.00 (s, 3H); 7.24 (s, 1H); 7.36 (d, 1H); 7.70 (d, 1H).

2-Methyl-6-hydroxycarbonyl-9-chloro-[1]-thiochromano[4,3-c] pyrazole

4.0 g (13.6 mmol) of 2-methyl-6-methoxycarbonyl-9-chloro-[1]-thiochromano[4,3-c]pyrazole in 100 ml of methanol/water (1:1) were refluxed with 0.8 g (20 mmol) of sodium hydroxide for 1 hour. The organic solvent was removed under reduced pressure and the residue was extracted with ethyl acetate. The aqueous phase was acidified using concentrated hydrochloric acid and the resulting precipitate was filtered off with suction and dried. This gave 3.5 g (92%) of 2-methyl-6-hydroxycarbonyl-9-chloro-[1]-thiochromano[4,3-c]-pyrazole

^1H NMR ($CDCl_3$, δ in ppm): 3.80 (s, 2H); 3.96 (s, 3H); 7.40 (d, 1H); 7.65 (m, 2H).

4-(2-Methyl-9-chloro-[1]-thiochromano[4,3-c]pyrazol-6-yl)-carbonyl-5-hydroxy-1-methyl-1H-pyrazole (compound 3.1)

A mixture of 0.60 g (2.1 mmol) of 2-methyl-6-hydroxycarbonyl-9-chloro-[1]-thiochromano[4,3-c]-pyrazole and 0.21 g (2.1 mmol) of N,N-dicyclohexylcarbodiimide in 20 ml of acetonitrile was stirred at room temperature overnight. The mixture was admixed with in each case 500 ml of ethyl acetate and 2% strength sodium carbonate solution, the resulting precipitate was filtered off, the organic phase was dried and the solvent was removed. The residue was then refluxed with 0.59 g (4.3 mmol) of potassium carbonate in 5 ml of 1,4-dioxane for 3 hours. After cooling, the mixture was extracted with diethyl ether and the aqueous phase was acidified to pH 3. The resulting precipitate was filtered off with suction and dried. This gave 0.14 g of 4-(2-methyl-9-chloro-[1]-thiochromano[4,3-c]pyrazol-6-yl)-carbonyl-5-hydroxy-1-methyl-1H-pyrazole.
M.p.: 168 - 171°C

3. (5-Hydroxy-1-methyl-1H-pyrazol-4-yl)-(6-methoxy-3a,4-dihydro-3H-chromeno[4,3-c]isoxazolin-9-yl)methanone (compound 2.3)

Methyl 2-hydroxy-3-formyl-4-methoxybenzoate

At from 0 to 5°C, a solution of 209.0 g (1.1 mol) of titanium tetrachloride in 150 ml of methylene chloride was added dropwise to a solution of 50.1 g (0.275 mol) of methyl 2-hydroxy-4-methoxybenzoate and 88 g (0.725 mol) of dichloromethoxymethane in 400 ml of methylene chloride, and the mixture was stirred at room temperature overnight. The mixture was then stirred into ice-water and extracted with methylene chloride. The combined organic phases were washed with sodium bicarbonate solution, water and sodium chloride solution and dried, and the solvent was then removed. Silica gel chromatography using cyclohexane/ethyl acetate = 1:1 gave 24.5 g (42%) of methyl 2-hydroxy-3-formyl-4-methoxybenzoate in the form of a colorless solid of m.p.: 123 - 124°C.
^1H NMR ($CDCl_3$, δ in ppm): 3.92 (s, 3H); 3.98 (s, 3H); 6.49 (d, 1H); 8.19 (d, 1H); 10.39 (s, 1H).

Methyl 2-allyloxy-3-formyl-4-methoxybenzoate

At room temperature, 23.2 g (0.192 mol) of allyl bromide were added dropwise to a mixture of 21.0 g (0.375 mol) of potassium hydroxide and 20.2 g (0.096 mol) of methyl 2-hydroxy-3-formyl-4-methoxybenzoate in 500 ml of dimethyl sulfoxide, and the mixture was stirred at room temperature for 4 hours. The mixture was subsequently stirred into 1.5 l of 3% strength aqueous hydrochloric acid and extracted with ethyl acetate. The combined organic phases were washed with water and dried, and the solvent was removed. Silica gel chromatography using cyclohexane/ethyl acetate = 1:2 gave 7.7 g (36%) of methyl 2-allyloxy-3-formyl-4-methoxybenzoate in the form of a yellowish oil.
^{1}H NMR ($CDCl_3$, δ in ppm): 3.86 (s, 3H); 3.93 (s, 3H); 4.58 (d, 2H); 5.32 (d, 1H); 5.39 (d, 1H); 6.15 (m, 1H); 6.79 (d, 1H); 8.04 (d, 1H); 10.41 (s, 1H).

6-Methoxy-9-methoxycarbonyl-3a,4-dihydro-3H-chromeno[4,3-c] isoxazoline

Step a)
At room temperature, 4.6 g (18.4 mmol) of methyl 2-allyloxy-3-formyl-4-methoxybenzoate in 70 ml of methanol were added dropwise to a solution of 2.25 g (32.3 mmol) of hydroxylammonium chloride and 2.7 g of pyridine in 70 ml of water. The mixture was stirred at room temperature overnight, 150 ml of water were added, the mixture was extracted with methylene chloride, the combined organic phases were washed with 3% strength aqueous hydrochloric acid and dried, and the solvent was removed. The resulting oxime has a melting point of 126 - 129°C.

Step b)
This oxime was reacted further without any further purification by dissolving it in 40 ml of methylene chloride, followed by dropwise addition of 15.0 ml (25.0 mmol) of sodium hypochlorite solution (12.5% of active chlorine). A spatula tip of sodium acetate was added and the mixture was stirred at room temperature for 12 hours. The organic phase was separated off, the aqueous phase was extracted with methylene chloride, the combined organic phases were washed with water and dried, and the solvent was removed. Silica gel chromatography using cyclohexane/ethyl acetate = 1:1 gave 2.2 g (49%) of 6-methoxy-9-methoxycarbonyl-3a,4-dihydro-3H-chromeno[4,3-c]-isoxazoline in the form of a colorless solid of m.p: 199 -

203°C.
^{1}H NMR ($CDCl_3$, δ in ppm): 3.84 (s, 3H); 3.98 (s, 3H); 3.8 - 4.0 (m, 2H); 4.16 (dt, 1H); 4.63 (t, 1H); 4.84 (dd, 1H); 6.61 (d, 1H); 7.93 (d, 1H).

6-Methoxy-9-hydroxycarbonyl-3a,4-dihydro-3H-chromeno[4,3-c] isoxazoline

At room temperature, a solution of 0.8 g (20.0 mmol) of sodium hydroxide in 7 ml of water was added dropwise to a solution of 2.1 g (8.0 mmol) of 6-methoxy-9-methoxycarbonyl-3a,4-dihydro-3H-chromeno[4,3-c]isoxazoline in 40 ml of methanol, and the mixture was refluxed for 6 hours. After cooling, the solvent was removed and the residue was taken up in about 50 ml of water and washed with methylene chloride. The aqueous phase was subsequently acidified using 10% strength hydrochloric acid (pH = 1 - 2), and the precipitate was filtered off with suction, washed with water and dried at 60°C. This gave 1.7 g (86%) of 6-methoxy-9-hydroxycarbonyl-3a,4-dihydro-3H-chromeno[4,3-c]-isoxazoline in the form of colorless crystals.
^{1}H NMR ($CDCl_3$, δ in ppm): 3.73 (dd, 1H); 3.89 (s, 3H); 3.84 - 3.95 (m, 1H); 4.11 (dd, 1H); 4.54 (dd, 1H); 4.79 (dd, 1H); 6.61 (d, 1H); 7.81 (d, 1H).

(5-Hydroxy-1-methyl-1H-pyrazol-4-yl)-(6-methoxy-3a,4-dihydro-3H-chromeno[4,3-c]isoxazolin-9-yl)methanone (compound 2.3)

Step a)
At room temperature, 0.26 g (2.2 mmol) of thionyl chloride and a drop of dimethylformamide were added to a solution of 0.50 g (2.0 mmol) of 6-methoxy-9-hydroxycarbonyl-3a,4-dihydro-3H-chromeno[(4,3-c)]isoxazoline in 30 ml of carbon tetrachloride, and the mixture was stirred at 40 - 50°C for 3 hours. The solvent was subsequently removed under reduced pressure. This gave, in quantitative yield, 6-methoxy-9-chloroformyl-3a,4-dihydro-3H-chromeno[4,.3-c] isoxazoline (0.54 g) as a brownish oil.

Step b)
0.54 g (2 mmol) of 6-methoxy-9-chloroformyl-3a,4-dihydro-3H-chromeno[4,3-c]isoxazoline was dissolved in 30 ml of acetonitrile and, at 0°C, added dropwise to a solution of 0.2 g (2.0 mmol) of 1-methyl-5-hydroxypyrazole and 0.6 g (6.0 mmol) of triethylamine in 20 ml of acetonitrile. The mixture was stirred at room temperature overnight, the solvent was removed, and the residue was taken up in

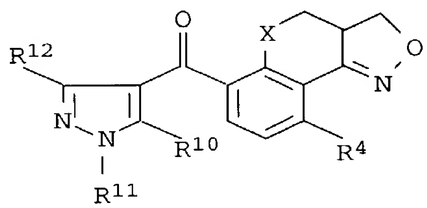
methylene chloride and washed with water. The solution was dried and the solvent was distilled off. The residue was dissolved in 30 ml of dioxane and admixed with 0.42 g (3.0 mmol) of potassium carbonate, and the mixture was refluxed for 7 hours. After cooling, the solvent was distilled off under reduced pressure, the residue was taken up in water and the solution was adjusted to pH = 1 using 10% strength hydrochloric acid. The solution was extracted with methylene chloride, the combined organic phases were dried and the solvent was subsequently removed. This gave 0.45 g (68%) of (5-hydroxy-1-methyl-1H-pyrazol-4-yl)-(6-methoxy-3a,4-dihydro-3H-chromeno[4,3-c]isoxazolin-9-yl)methanone of m.p. 236 - 238°C.
^{1}H NMR ($CDCl_3$, δ in ppm): 3.66 (s, 3H); 3.84 - 4.2 (m, 2H); 4.02 (s, 3H); 4.12 (dd, 1H); 4.63 - 4.77 (m, 2H); 6.68 (d, 1H); 7.24 (s, 1H); 7.61 (d, 1H).

4. [5-Hydroxy-1-(1,1-dimethyleth-1-yl)-1H-pyrazol-4-yl]-[6-methoxy-3a,4-dihydro-3H-chromeno[4,3-c]isoxazolin-9-yl] methanone (compound 2.4)

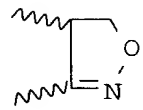
0.54 g (2 mmol) of 6-methoxy-9-chloroformyl-3a,4-dihydro-3H-chromeno[4,3-c]-isoxazoline was dissolved in 30 ml of acetonitrile and, at 0°C, added dropwise to a solution of 0.28 g (2.0 mmol) of 1-(1,1-dimethyleth-1-yl)-5-hydroxy-1H-pyrazole and 0.6 g (6.0 mmol) of triethylamine in 20 ml of acetonitrile. The mixture was stirred at room temperature overnight, the solvent was removed, and the residue was taken up in methylene chloride and washed with water. The solution was dried, and the solvent was distilled off. The residue was dissolved in 30 ml of dioxane and admixed with 0.42 g (3.0 mmol) of potassium carbonate, and the mixture was refluxed for 7 hours. After cooling, the solvent was distilled off under reduced pressure, the residue was taken up in water and the solution was adjusted to pH = 1 using 10% strength hydrochloric acid. The solution was extracted with methylene chloride, the combined organic phases were dried, and the solvent was subsequently removed. This gave 0.3 g (40%) of [5-hydroxy-1-(1,1-dimethyleth-1-yl)-1H-pyrazol-4-yl]-[6-methoxy-3a,4-dihydro-3H-chromeno[4,3-c]isoxazolin-9-yl] methanone having a melting point of 223°C - 225°C.
^{1}H NMR ($CDCl_3$, δ in ppm): 1.64 (s, 9H); 3.8 - 4.2 (m, 6H); 4.6 - 4.8 (m, 2H); 6.68 (d, 1H); 7.44 (s, 1H); 7.62 (d, 1H).

In addition to the compounds above, other tricyclic benzoylpyrazole derivatives of the formula I which were prepared or are preparable in a similar manner are listed in Tables 2 to 5:

Table 2:

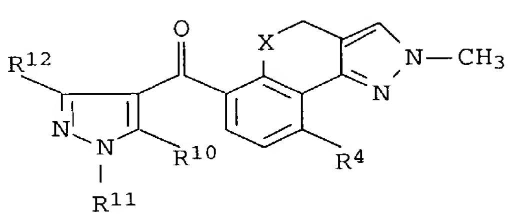


Ia where l = O, R^5 = H, Y together with the two carbons to which it is attached forms the following isoxazoline:

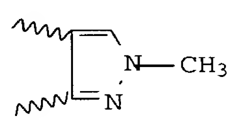


No.	X	R^4	R^{10}	R^{11}	R^{12}	physical data (m.p.[°C]; ^1H NMR [ppm])
2.1	Bond	SO_2CH_3	OH	CH_3	H	3.03 (dd, 1H); 3.42 (s, 3H); 3.51 (s, 3H); 4.05 (m, 2H); 4.85 (t, 1H); 7.57 (s, 1H); 7.92 (d, 1H); 8.22 (d, 1H)
2.2	Bond	SO_2CH_3	$OCOC_6H_5$	CH_3	H	3.22 (s, 3H); 3.34 (m, 2H); 3.81 (s, 3H); 3.98 (m, 2H); 4.81 (t, 1H); 7.20 - 8.21 (m, 8H);
2.3	O	OCH_3	OH	CH_3	H	236 - 238
2.4	O	OCH_3	OH	$C(CH_3)_3$	H	223 - 225
2.5	O	OCH_3	OCO(3-F -C_6H_4)	CH_3	H	oil

Table 3:

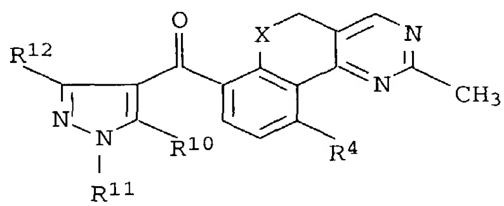


Ia where R^5 = H, Y together with the two carbons to which it is attached forms the following methyl-substituted pyrazole:

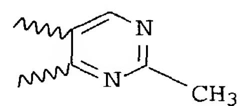


No.	X	R^4	R^{10}	R^{11}	R^{12}	physical data (m.p. [°C])
3.1	S	Cl	OH	CH_3	H	168 - 171
3.2	S	Cl	OH	CH_2CH_3	H	115
3.3	S	SCH_3	OH	CH_3	H	245
3.4	S	SCH_3	OH	CH_2CH_3	H	222

Table 4:

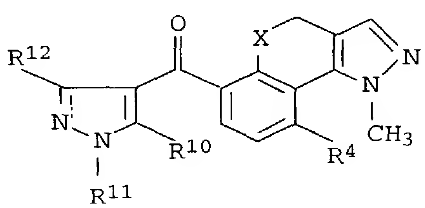


Ia where R^5 = H,
Y together with the two carbons to which it is attached forms the following methyl-substituted pyrimidine:



No.	X	R^4	R^{10}	R^{11}	R^{12}	physical data (m.p. [°C]; ^1H NMR [ppm])
4.1	S	Cl	OH	CH_3	H	180°C
4.2	S	Cl	OH	CH_2CH_3	H	112°C

Table 5:



Nr.	X	R^4	R^{10}	R^{11}	R^{12}	physical data (m.p. [°C]; ^1H NMR [ppm])
5.1	O	SCH_3	OH	CH_3	H	201

The compounds of the formula I and their agriculturally useful salts are suitable, both in the form of isomer mixtures and in the form of the pure isomers, as herbicides. The herbicidal compositions comprising compounds of the formula I control vegetation on non-crop areas very efficiently, especially at high rates of application. They act against broad-leaved weeds and grass weeds in crops such as wheat, rice, maize, soya and cotton

without causing any significant damage to the crop plants. This effect is mainly observed at low rates of application.

Depending on the application method in question, the compounds of the formula I, or herbicidal compositions comprising them, can additionally be employed in a further number of crop plants for eliminating undesirable plants. Examples of suitable crops are the following:

Allium cepa, Ananas comosus, Arachis hypogaea, Asparagus officinalis, Beta vulgaris spec. altissima, Beta vulgaris spec. rapa, Brassica napus var. napus, Brassica napus var. napobrassica, Brassica rapa var. silvestris, Camellia sinensis, Carthamus tinctorius, Carya illinoinensis, Citrus limon, Citrus sinensis, Coffea arabica (Coffea canephora, Coffea liberica), Cucumis sativus, Cynodon dactylon, Daucus carota, Elaeis guineensis, Fragaria vesca, Glycine max, Gossypium hirsutum, (Gossypium arboreum, Gossypium herbaceum, Gossypium vitifolium), Helianthus annuus, Hevea brasiliensis, Hordeum vulgare, Humulus lupulus, Ipomoea batatas, Juglans regia, Lens culinaris, Linum usitatissimum, Lycopersicon lycopersicum, Malus spec., Manihot esculenta, Medicago sativa, Musa spec., Nicotiana tabacum (N.rustica), Olea europaea, Oryza sativa, Phaseolus lunatus, Phaseolus vulgaris, Picea abies, Pinus spec., Pisum sativum, Prunus avium, Prunus persica, Pyrus communis, Ribes sylvestre, Ricinus communis, Saccharum officinarum, Secale cereale, Solanum tuberosum, Sorghum bicolor (s. vulgare), Theobroma cacao, Trifolium pratense, Triticum aestivum, Triticum durum, Vicia faba, Vitis vinifera and Zea mays.

In addition, the compounds of the formula I may also be used in crops which tolerate the action of herbicides owing to breeding, including genetic engineering methods.

The compounds of the formula I, or the herbicidal compositions comprising them, can be used for example in the form of ready-to-spray aqueous solutions, powders, suspensions, also highly-concentrated aqueous, oily or other suspensions or dispersions, emulsions, oil dispersions, pastes, dusts, materials for broadcasting, or granules, by means of spraying, atomizing, dusting, spreading or watering. The use forms depend on the intended purpose; in any case, they should guarantee the finest possible distribution of the active compounds according to the invention.

The herbicidal compositions comprise a herbicidally effective amount of at least one compound of the formula I or an agriculturally useful salt of I and auxiliaries which are customarily used for formulating crop protection agents.

Suitable for use as inert auxiliaries are essentially the following:

mineral oil fractions of medium to high boiling point, such as kerosene and diesel oil, furthermore coal-tar oils and oils of vegetable or animal origin, aliphatic, cyclic and aromatic hydrocarbons, for example paraffin, tetrahydronaphthalene, alkylated naphthalenes and their derivatives, alkylated benzenes or their derivatives, alcohols such as methanol, ethanol, propanol, butanol and cyclohexanol, ketones such as cyclohexanone, strongly polar solvents, for example amines such as N-methylpyrrolidone, and water.

Aqueous use forms can be prepared from emulsion concentrates, suspensions, pastes, wettable powders or water-dispersible granules by adding water. To prepare emulsions, pastes or oil dispersions, the tricyclic benzoylpyrazole derivatives of the formula I, either as such or dissolved in an oil or solvent, can be homogenized in water by means of a wetting agent, tackifier, dispersant or emulsifier. Alternatively, it is possible to prepare concentrates comprising active compound, wetting agent, tackifier, dispersant or emulsifier and, if desired, solvent or oil, which are suitable for dilution with water.

Suitable surfactants are the alkali metal salts, alkaline earth metal salts and ammonium salts of aromatic sulfonic acids, e.g. ligno-, phenol-, naphthalene- and dibutylnaphthalenesulfonic acid, and of fatty acids, alkyl- and alkylarylsulfonates, alkyl sulfates, lauryl ether sulfates and fatty alcohol sulfates, and salts of sulfated hexa-, hepta- and octadecanols, and also of fatty alcohol glycol ethers, condensates of sulfonated naphthalene and its derivatives with formaldehyde, condensates of naphthalene or of the naphthalenesulfonic acids with phenol and formaldehyde, polyoxyethylene octylphenol ether, ethoxylated isooctyl-, octyl- or nonylphenol, alkylphenyl or tributylphenyl polyglycol ether, alkylaryl polyether alcohols, isotridecyl alcohol, fatty alcohol/ethylene oxide condensates, ethoxylated castor oil, polyoxyethylene alkyl ethers or polyoxypropylene alkyl ethers, lauryl alcohol polyglycol ether acetate, sorbitol esters, lignin-sulfite waste liquors or methylcellulose.

Powders, materials for broadcasting and dusts can be prepared by mixing or grinding the active compounds together with a solid carrier.

Granules, e.g. coated granules, impregnated granules and homogeneous granules, can be prepared by binding the active compounds to solid carriers. Solid carriers are mineral earths such as silicas, silica gels, silicates, talc, kaolin, limestone, lime, chalk, bole, loess, clay, dolomite, diatomaceous earth, calcium sulfate, magnesium sulfate and magnesium oxide, ground synthetic materials, fertilizers such as ammonium sulfate, ammonium phosphate, ammonium nitrate and ureas, and products of vegetable origin, such as cereal meal, tree bark meal, wood meal and nutshell meal, cellulose powders, or other solid carriers.

The concentrations of the compounds of the formula I in the ready-to-use preparations can be varied within wide ranges. In general, the formulations comprise approximately from 0.001 to 98% by weight, preferably 0.01 to 95% by weight, of at least one active compound. The active compounds are employed in a purity of from 90% to 100%, preferably 95% to 100% (according to NMR spectrum).

The following formulation examples illustrate the preparation of such formulations:

I. 20 parts by weight of the compound No. 2.2 are dissolved in a mixture composed of 80 parts by weight of alkylated benzene, 10 parts by weight of the adduct of from 8 to 10 mol of ethylene oxide to 1 mol of oleic acid N-monoethanolamide, 5 parts by weight of calcium salt of dodecylbenzenesulfonic acid and 5 parts by weight of the adduct of 40 mol of ethylene oxide to 1 mol of castor oil. Pouring the solution into 100,000 parts by weight of water and finely distributing it therein gives an aqueous dispersion which comprises 0.02% by weight of the active compound.

II. 20 parts by weight of the compound No. 3.1 are dissolved in a mixture composed of 40 parts by weight of cyclohexanone, 30 parts by weight of isobutanol, 20 parts by weight of the adduct of 7 mol of ethylene oxide to 1 mol of isooctylphenol and 10 parts by weight of the adduct of 40 mol of ethylene oxide to 1 mol of castor oil. Pouring the solution into 100,000 parts by weight of water and finely distributing it therein gives an aqueous dispersion

which comprises 0.02% by weight of the active compound.

III. 20 parts by weight of the compound No. 2.3 are dissolved in a mixture composed of 25 parts by weight of cyclohexanone, 65 parts by weight of a mineral oil fraction of boiling point 210 to 280°C and 10 parts by weight of the adduct of 40 mol of ethylene oxide to 1 mol of castor oil. Pouring the solution into 100,000 parts by weight of water and finely distributing it therein gives an aqueous dispersion which comprises 0.02% by weight of the active compound.

IV. 20 parts by weight of the compound No. 2.4 are mixed thoroughly with 3 parts by weight of the sodium salt of diisobutylnaphthalenesulfonic acid, 17 parts by weight of the sodium salt of a lignosulfonic acid from a sulfite waste liquor and 60 parts by weight of pulverulent silica gel, and the mixture is ground in a hammer mill. Finely distributing the mixture in 20,000 parts by weight of water gives a spray mixture which comprises 0.1% by weight of the active compound.

V. 3 parts by weight of the compound No. 2.3 are mixed with 97 parts by weight of finely divided kaolin. This gives a dust which comprises 3% by weight of the active compound.

VI. 20 parts by weight of the compound No. 2.4 are mixed intimately with 2 parts by weight of calcium salt of dodecylbenzenesulfonic acid, 8 parts by weight of fatty alcohol polyglycol ether, 2 parts by weight of sodium salt of a phenol/urea/formaldehyde condensate and 68 parts by weight of a paraffinic mineral oil. This gives a stable oily dispersion.

VII. 1 part by weight of the compound No. 2.2 is dissolved in a mixture composed of 70 parts by weight of cyclohexanone, 20 parts by weight of ethoxylated isooctylphenol and 10 parts by weight of ethoxylated castor oil. This gives a stable emulsion concentrate.

VIII. 1 part by weight of the compound No. 3.1 is dissolved in a mixture composed of 80 parts by weight of cyclohexanone and 20 parts by weight of Wettol® EM 31 (= nonionic emulsifier based on ethoxylated castor oil). This gives a stable emulsion concentrate.

The compounds of the formula I or the herbicidal compositions can be applied pre- or post-emergence. If the active compounds are

less well tolerated by certain crop plants, application techniques may be used in which the herbicidal compositions are sprayed, with the aid of the spraying equipment, in such a way that as far as possible they do not come into contact with the leaves of the sensitive crop plants, while the active compounds reach the leaves of undesirable plants growing underneath, or the bare soil surface (post-directed, lay-by).

The rates of application of the compound of the formula I are from 0.001 to 3.0, preferably 0.01 to 1.0, kg/ha of active substance (a.s.), depending on the control target, the season, the target plants and the growth stage.

To widen the spectrum of action and to achieve synergistic effects, the tricyclic benzylpyrazole derivatives of the formula I may be mixed with a large number of representatives of other herbicidal or growth-regulating activ'e compound groups and applied concomitantly. Suitable components for mixtures are, for example, 1,2,4-thiadiazoles, 1,3,4-thiadiazoles, amides, aminophosphoric acid and its derivatives, aminotriazoles, anilides, aryloxy-/heteroaryloxyalkanoic acids and their derivatives, benzoic acid and its derivatives, benzothiadiazinones, 2-aroyl-1,3-cyclohexanediones, heteroaryl aryl ketones, benzylisoxazolidinones, meta-CF_3-phenyl derivatives, carbamates, quinoline carboxylic acid and its derivatives, chloroacetanilides, cyclohexenone oxime ether derivatives, diazines, dichloropropionic acid and its derivatives, dihydrobenzofurans, dihydrofuran-3-ones, dinitroanilines, dinitrophenols, diphenyl ethers, dipyridyls, halocarboxylic acids and their derivatives, ureas, 3-phenyluracils, imidazoles, imidazolinones, N-phenyl-3,4,5,6-tetrahydrophthalimides, oxadiazoles, oxiranes, phenols, aryloxy- and hetaryloxyphenoxypropionic esters, phenylacetic acid and its derivatives, 2-phenylpropionic acid and its derivatives, pyrazoles, phenylpyrazoles, pyridazines, pyridinecarboxylic acid and its derivatives, pyrimidyl ethers, sulfonamides, sulfonylureas, triazines, triazinones, triazolinones, triazolecarboxamides and uracils.

It may furthermore be advantageous to apply the compounds of the formula I, alone or in combination with other herbicides, in the form of a mixture with other crop protection agents, for example together with agents for controlling pests or phytopathogenic fungi or bacteria. Also of interest is the miscibility with mineral salt solutions, which are employed for treating nutritional and trace element deficiencies. Non-phytotoxic oils

and oil concentrates may also be added.

Use Examples

The herbicidal activity of the tricyclic benzylpyrazole derivatives of the formula I was demonstrated by the following greenhouse experiments:

The culture containers used were plastic pots containing loamy sand with approximately 3.0% of humus as the substrate. The seeds of the test plants were sown separately for each species.

For the pre-emergence treatment, the active compounds, which had been suspended or emulsified in water, were applied directly after sowing by means of finely distributing nozzles. The containers were irrigated gently to promote germination and growth and subsequently covered with transparent plastic hoods until the plants had rooted. This cover causes uniform germination of the test plants, unless this was adversely affected by the active compounds.

For post-emergence treatment, the test plants were first grown to a plant height of from 3 to 15 cm, depending on the plant habit, and only then treated with the active compounds which had been suspended or emulsified in water. For this purpose, the test plants were either sown directly and grown in the same containers, or they were first grown separately as seedlings and transplanted into the test containers a few days prior to the treatment. The application rate for the post-emergence treatment was 0.5 or 0.25 kg of a.s./ha.

Depending on the species, the plants were kept at 10–25°C or 20–35°C. The test period extended over 2 to 4 weeks. During this time, the plants were tended, and their response to the individual treatments was evaluated.

Evaluation was carried out using a scale from 0 to 100. 100 means no emergence of the plants, or complete destruction of at least the above-ground parts, and 0 means no damage, or normal course of growth.

The plants used in the greenhouse trials were of the following species:

Scientific Name	Common Name
Chenopodium album	lambsquarters (goosefoot)
Echinochloa crusgalli	barnyardgrass
Setaria viridis	green foxtail
Solanum nigrum	black nightshade
Veronica ssp.	speadwell

At application rates of 0.5 or 0.25 kg/ha, the compound 2.2 shows very good activity against the abovementioned undesired broad-leaved weeds and weed grasses when applied by the post-emergence method.

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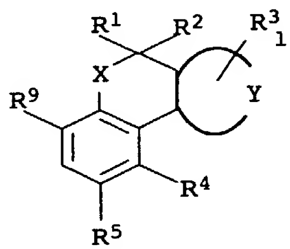
We claim:

1. A tricyclic benzoylpyrazole derivative of the formula I



I

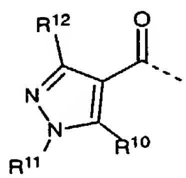
where:

X	is oxygen, sulfur, S=O, $S(=O)_2$, CR^6R^7, NR^8 or a bond;
Y	together with the two carbons to which it is attached forms a saturated, partially saturated or unsaturated 5- or 6-membered heterocycle which contains one to three identical or different heteroatoms selected from the following group: oxygen, sulfur and nitrogen;
R^1,R^2,R^6,R^7	are hydrogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkoxy or C_1-C_6-haloalkoxy;
R^3	is halogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkoxy or C_1-C_6-haloalkoxy;
R^4	is hydrogen, nitro, halogen, cyano, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkoxy, C_1-C_6-haloalkoxy, C_1-C_6-alkylthio, C_1-C_6-haloalkylthio, C_1-C_6-alkylsulfinyl, C_1-C_6-haloalkylsulfinyl, C_1-C_6-alkylsulfonyl, C_1-C_6-haloalkylsulfonyl, aminosulfonyl, N-(C_1-C_6-alkyl)aminosulfonyl, N,N-di(C_1-C_6-alkyl)aminosulfonyl, N-(C_1-C_6-alkylsulfonyl)amino, N-(C_1-C_6-haloalkylsulfonyl)amino, N-(C_1-C_6-alkyl)-N-(C_1-C_6-alkylsulfonyl)amino or N-(C_1-C_6-alkyl)-N-(C_1-C_6-haloalkylsulfonyl)amino;
R^5	is hydrogen, C_1-C_6-alkyl or halogen;
R^8	is hydrogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkylcarbonyl, formyl, C_1-C_6-alkoxycarbonyl,

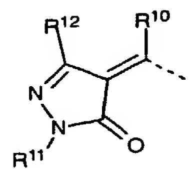
C_1-C_6-haloalkoxycarbonyl, C_1-C_6-alkylsulfonyl or C_1-C_6-haloalkylsulfonyl;

l is 0, 1 or 2;

R^9 is a radical IIa or IIb



IIa



IIb

where

R^{10} is hydroxyl, mercapto, halogen, OR^{13}, SR^{13}, SO_2R^{14}, $NR^{15}R^{16}$ or N-bonded heterocyclyl, where the heterocyclyl radical may be partially or fully halogenated and/or may carry one to three of the following radicals: nitro, cyano, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkoxy or C_1-C_4-haloalkoxy;

R^{11} is hydrogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_3-C_6-cycloalkyl, hydroxyl, C_1-C_6-alkoxy or C_1-C_6-haloalkoxy;

R^{12} is hydrogen, halogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl, hydroxyl, C_1-C_6-alkoxy, C_1-C_6-haloalkoxy, C_1-C_6-alkylthio or C_1-C_6-haloalkylthio;

R^{13} is C_1-C_6-alkyl, C_3-C_6-alkenyl, C_3-C_6-haloalkenyl, C_3-C_6-alkynyl, C_3-C_6-haloalkynyl, C_3-C_6-cycloalkyl, C_1-C_{20}-alkylcarbonyl, C_2-C_{20}-alkenylcarbonyl, C_2-C_6-alkynylcarbonyl, C_3-C_6-cycloalkylcarbonyl, C_1-C_6-alkoxycarbonyl, C_3-C_6-alkenyloxycarbonyl, C_3-C_6-alkynyloxycarbonyl, C_1-C_6-alkylthiocarbonyl, C_1-C_6-alkylaminocarbonyl, C_3-C_6-alkenylaminocarbonyl, C_3-C_6-alkynylaminocarbonyl, N,N-di(C_1-C_6-alkyl)aminocarbonyl, N-(C_3-C_6-alkenyl)-N-(C_1-C_6-alkyl)aminocarbonyl, N-(C_3-C_6-alkynyl)-N-(C_1-C_6-alkyl)aminocarbonyl, N-(C_1-C_6-alkoxy)-N-(C_1-C_6-alkyl)aminocarbonyl, N-(C_3-C_6-alkenyl)-N-(C_1-C_6-alkoxy)aminocarbonyl,

N-(C_3-C_6-alkynyl)-N-(C_1-C_6-alkoxy)aminocarbonyl, di(C_1-C_6-alkyl)aminothiocarbonyl, C_1-C_6-alkylcarbonyl-C_1-C_6-alkyl, C_1-C_6-alkoxyimino-C_1-C_6-alkyl, N-(C_1-C_6-alkylamino)imino-C_1-C_6-alkyl or N,N-di(C_1-C_6-alkylamino)imino-C_1-C_6-alkyl, where the abovementioned alkyl, cycloalkyl and alkoxy radicals may be partially or fully halogenated and/or may carry one to three of the following groups:
cyano, C_1-C_4-alkoxy, C_1-C_4-alkylthio, di(C_1-C_4-alkyl)amino, C_1-C_4-alkylcarbonyl, C_1-C_4-alkoxycarbonyl, C_1-C_4-alkoxy-C_1-C_4-alkoxycarbonyl, di(C_1-C_4-alkyl)amino-C_1-C_4-alkoxycarbonyl, hydroxycarbonyl, C_1-C_4-alkylaminocarbonyl, di(C_1-C_4-alkyl)aminocarbonyl, aminocarbonyl, C_1-C_4-alkylcarbonyloxy or C_3-C_6-cycloalkyl;

is phenyl, heterocyclyl, phenyl-C_1-C_6-alkyl, heterocyclyl-C_1-C_6-alkyl, phenylcarbonyl-C_1-C_6-alkyl, heterocyclylcarbonyl-C_1-C_6-alkyl, phenylcarbonyl, heterocyclylcarbonyl, phenoxycarbonyl, phenyloxythiocarbonyl, heterocyclyloxycarbonyl, heterocyclyloxythiocarbonyl, phenylaminocarbonyl, N-(C_1-C_6-alkyl)-N-(phenyl)aminocarbonyl, heterocyclylaminocarbonyl, N-(C_1-C_6-alkyl)-N-(heterocyclyl)aminocarbonyl, phenyl-C_2-C_6-alkenylcarbonyl or heterocyclyl-C_2-C_6-alkenylcarbonyl, where the phenyl and the heterocyclyl radical of the 18 lastmentioned substituents may be partially or fully halogenated and/or may carry one to three of the following radicals:
nitro, cyano, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkoxy, C_1-C_4-haloalkoxy, heterocyclyl or N-bonded heterocyclyl, where the two lastmentioned substituents for their part may be partially or fully halogenated and/or may carry one to three of the following radicals:
nitro, cyano, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkoxy or C_1-C_4-haloalkoxy;

R^{14} is C_1-C_6-alkyl, C_3-C_6-alkenyl, C_3-C_6-haloalkenyl, C_3-C_6-alkynyl, C_3-C_6-haloalkynyl, C_3-C_6-cycloalkyl, C_1-C_6-alkoxy, di(C_1-C_6-alkyl)amino or

di(C_1-C_6-haloalkyl)amino, where the abovementioned alkyl, cycloalkyl and alkoxy radicals may be partially or fully halogenated and/or may carry one to three of the following groups: cyano, C_1-C_4-alkoxy, C_1-C_4-alkylthio, di(C_1-C_4-alkyl)amino, C_1-C_4-alkylcarbonyl, C_1-C_4-alkoxycarbonyl, C_1-C_4-alkoxy-C_1-C_4-alkoxycarbonyl, di(C_1-C_4-alkyl)amino-C_1-C_4-alkoxycarbonyl, hydroxycarbonyl, C_1-C_4-alkylaminocarbonyl, di(C_1-C_4-alkyl)aminocarbonyl, aminocarbonyl, C_1-C_4-alkylcarbonyloxy or C_3-C_6-cycloalkyl;

is phenyl, heterocyclyl, phenyl-C_1-C_6-alkyl, heterocyclyl-C_1-C_6-alkyl, phenoxy, heterocyclyloxy, where the phenyl and the heterocyclyl radical of the lastmentioned substituents may be partially or fully halogenated and/or may carry one to three of the following radicals: nitro, cyano, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkoxy or C_1-C_4-haloalkoxy;

R^{15} is C_1-C_6-alkyl, C_3-C_6-alkenyl, C_3-C_6-haloalkenyl, C_3-C_6-alkynyl, C_3-C_6-haloalkynyl, C_3-C_6-cycloalkyl, C_1-C_6-alkoxy, C_3-C_6-alkenyloxy, C_3-C_6-alkynyloxy, di(C_1-C_6-alkyl)amino or C_1-C_6-alkylcarbonylamino, where the abovementioned alkyl, cycloalkyl and alkoxy radicals may be partially or fully halogenated and/or may carry one to three radicals of the following group: cyano, C_1-C_4-alkoxy, C_1-C_4-alkylthio, di(C_1-C_4-alkyl)amino, C_1-C_4-alkylcarbonyl, C_1-C_4-alkoxycarbonyl, C_1-C_4-alkoxy-C_1-C_4-alkoxycarbonyl, di(C_1-C_4-alkyl)amino-C_1-C_4-alkoxycarbonyl, hydroxycarbonyl, C_1-C_4-alkylaminocarbonyl, di(C_1-C_4-alkyl)aminocarbonyl, aminocarbonyl, C_1-C_4-alkylcarbonyloxy or C_3-C_6-cycloalkyl;

is phenyl, heterocyclyl, phenyl-C_1-C_6-alkyl or heterocyclyl-C_1-C_6-alkyl, where the phenyl or heterocyclyl radical of the four lastmentioned substituents may be partially or fully halogenated and/or may carry one to three of the following radicals:

nitro, cyano, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkoxy or C_1-C_4-haloalkoxy;

R^{16} is C_1-C_6-alkyl, C_3-C_6-alkenyl, C_3-C_6-alkynyl or C_1-C_6-alkylcarbonyl;

and their agriculturally useful salts.

2. A tricyclic benzoylpyrazole derivative of the formula I as claimed in claim 1 where R^9 is IIa.

3. A tricyclic benzoylpyrazole derivative of the formula I as claimed in claim 1 or 2 where X is oxygen, sulfur or a bond.

4. A tricyclic benzoylpyrazole derivative of the formula I as claimed in any of claims 1 to 3 where

Y together with the two carbons to which it is attached forms a heterocycle selected from the following group: dihydropyrazolediyl, dihydroisoxazolediyl, pyrazolediyl, isoxazolediyl or pyrimidinediyl.

5. A tricyclic benzoylpyrazole derivative of the formula I as claimed in any of claims 1 to 4 where

R^1, R^2 are hydrogen;

R^3 is C_1-C_6-alkyl;

R^4 is nitro, halogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkoxy, C_1-C_6-alkylthio or C_1-C_6-alkylsulfonyl;

R^5 is hydrogen;

l is 0 or 1.

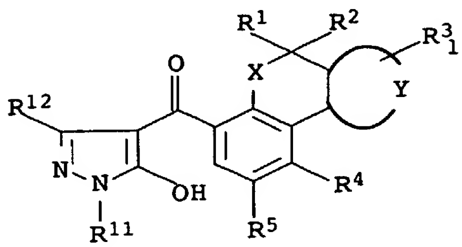
6. A tricyclic benzoylpyrazole derivative of the formula I as claimed in any of claims 1 to 5 where

R^{10} is hydroxyl;

R^{11} is C_1-C_6-alkyl or C_3-C_6-cycloalkyl;

R^{12} is hydrogen or C_1-C_6-alkyl.

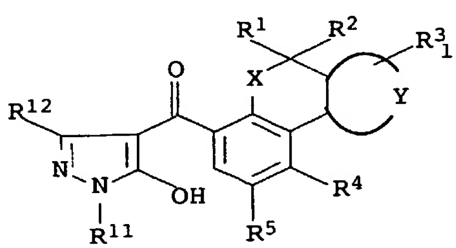
7. A process for preparing compounds of the formula I where R^{10} = halogen as claimed in claim 1, which comprises reacting a tricyclic benzoylpyrazole derivative of the formula Iα (= I where R^{10} = hydroxyl),



Iα

where the variables R^1 to R^5, R^{11} and R^{12}, X, Y and l are as defined in claim 1, with a halogenating agent.

8. A process for preparing compounds of the formula I where R^{10} = OR^{13} as claimed in claim 1, which comprises reacting a tricyclic benzoylpyrazole derivative of the formula Iα (= I where R^{10} = hydroxyl),



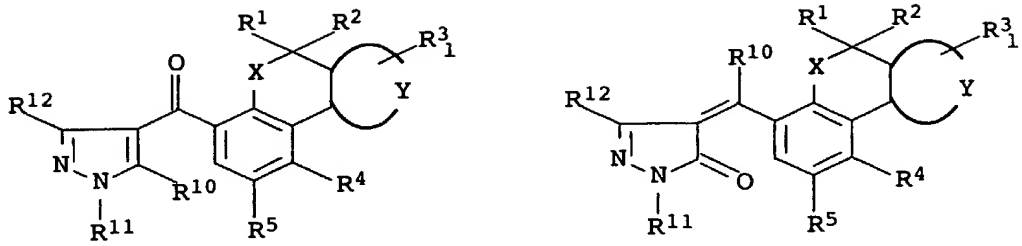
Iα

where the variables R^1 to R^5, R^{11} and R^{12}, X, Y and l are as defined in claim 1, with a compound of the formula III

L^1-R^{13} III

where the variable R^{13} is as defined in claim 1 and L^1 is a nucleophilically replaceable leaving group.

9. A process for preparing compounds of the formula I where R^{10} = OR^{13}, SR^{13}, $NR^{15}R^{16}$ or N-bonded heterocyclyl as claimed in claim 1, which comprises reacting a compound of the formula Iβ (≡ I where R^{10} = halogen),



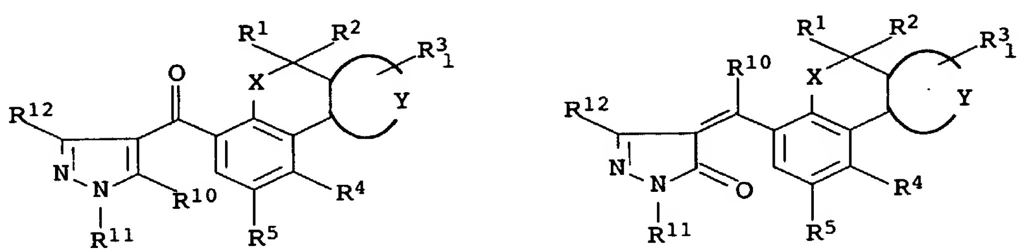
Iβ

where the variables R^1 to R^5, R^{11} and R^{12}, X, Y and l are as defined in claim 1, with a compound of the formula IVα, IVβ, IVγ or IVδ

HOR^{13}	HSR^{13}	HNR^{15}R^{16}	H(N-bonded heterocyclyl)
IVα	IVβ	IVγ	IVδ

where the variables R^{13} to R^{16} are as defined in claim 1, if appropriate in the presence of a base.

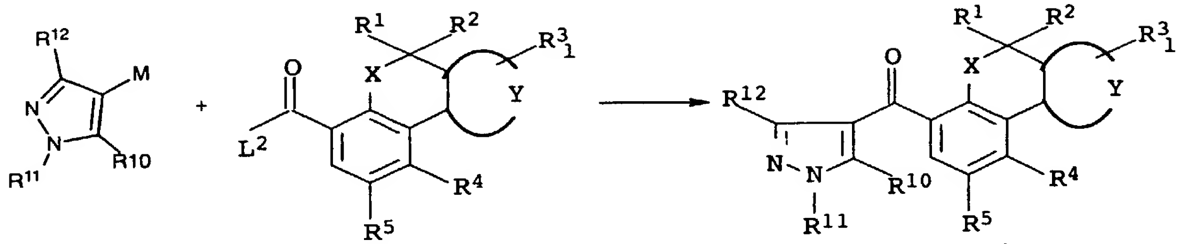
10. A process for preparing compounds of the formula I where R^{10} = SO_2R^{14} as claimed in claim 1, which comprises reacting a compound of the formula Iγ (≡ I where R^{10} = SR^{14}),



Iγ

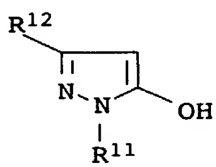
where the variables R^1 to R^5, R^{11} and R^{12}, X, Y and l are as defined in claim 1, with an oxidizing agent.

11. A process for preparing compounds of the formula I where R^9 = IIa as claimed in claim 1, which comprises reacting a metalated pyrazole derivative of the formula V where M is a metal and R^{10} to R^{12} are as defined in claim 1, except for R^{10} = hydroxyl and mercapto, with a tricyclic benzoic acid derivative of the formula VIα where R^1 to R^5, X, Y and l are as defined in claim 1 and L^2 is a nucleophilically replaceable leaving group.



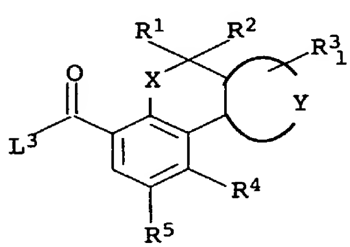
V VIα Ia (where $R^{10} \neq$ OH, SH)

12. A process for preparing tricyclic benzoylpyrazole derivatives of the formula Iα (= I where R^{10} = hydroxyl) as claimed in claim 1, which comprises acylating a pyrazole of the formula VII in which the variables R^{11} and R^{12} are as defined in claim 1

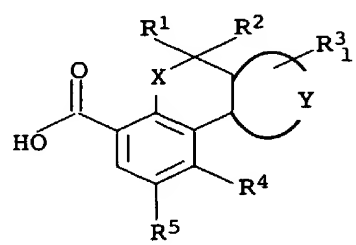


VII

with an activated tricyclic benzoic acid of the formula VIβ or with a tricyclic benzoic acid VIγ,



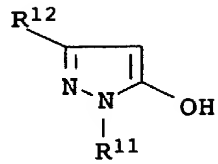
VIβ



VIγ

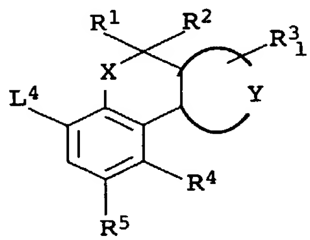
where the variables R^1 to R^5, X, Y and l are as defined in claim 1 and L^3 is a nucleophilically replaceable leaving group, and rearranging the acylation product, if appropriate in the presence of a catalyst.

13. A process for preparing tricyclic benzoylpyrazole derivatives of the formula Iα (≡ I where R^{10} = hydroxyl) as claimed in claim 1, which comprises reacting a pyrazole of the formula VII in which the variables R^{11} and R^{12} are as defined in claim 1, or an alkali metal salt thereof,



VII

with a tricyclic benzene derivative of the formula IX where L^4 is a leaving group and the variables X, Y, R^1 to R^5 and 1 are as defined in claim 1



IX

in the presence of carbon monoxide, a catalyst and a base.

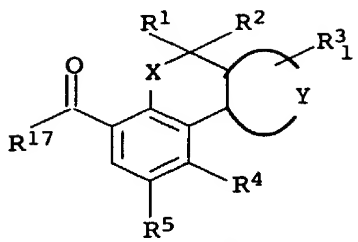
14. A composition, comprising a herbicidally effective amount of at least one tricyclic benzoylpyrazole derivative of the formula I or an agriculturally useful salt of I as claimed in claims 1 to 6 and auxiliaries which are customary for formulating crop protection agents.

15. A process for preparing compositions as claimed in claim 14, which comprises mixing a herbicidally effective amount of at least one tricyclic benzoylpyrazole derivative of the formula I or an agriculturally useful salt of I as claimed in claims 1 to 6 and auxiliaries which are customary for formulating crop protection agents.

16. A method for controlling undesirable vegetation, which comprises allowing a herbicidally effective amount of at least one tricyclic benzoylpyrazole derivative of the formula I or an agriculturally useful salt of I as claimed in claims 1 to 6 to act on plants, their habitat and/or on seed.

17. The use of tricyclic benzoylpyrazole derivatives of the formula I or their agriculturally useful salts as claimed in claims 1 to 6 as herbicides.

18. A tricyclic benzoic acid derivative of the formula VI



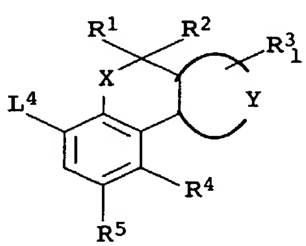
VI

in which the variables X, Y, R^1 to R^3 and R^5 and l are as defined in claim 1 and

R^4 is nitro, halogen, cyano, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkoxy, C_1-C_6-haloalkoxy, C_1-C_6-alkylthio, C_1-C_6-haloalkylthio, C_1-C_6-alkylsulfinyl, C_1-C_6-haloalkylsulfinyl, C_1-C_6-alkylsulfonyl, C_1-C_6-haloalkylsulfonyl, aminosulfonyl, N-(C_1-C_6-alkyl)aminosulfonyl, N,N-di(C_1-C_6-alkyl)aminosulfonyl, N-(C_1-C_6-alkylsulfonyl)amino, N-(C_1-C_6-haloalkylsulfonyl)amino, N-(C_1-C_6-alkyl)-N-(C_1-C_6-alkylsulfonyl)amino or N-(C_1-C_6-alkyl)-N-(C_1-C_6-haloalkylsulfonyl)amino;

R^{17} is hydroxyl or a radical which can be removed by hydrolysis.

19. A tricyclic benzene derivative of the formula IX



IX

in which the variables X, Y, R^1 to R^3 and l are as defined in claim 1 and

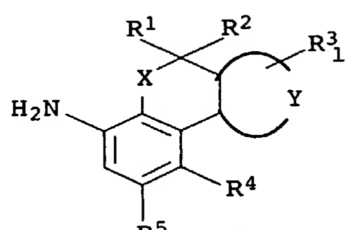
R^4 is nitro, halogen, cyano, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkylthio, C_1-C_6-haloalkylthio, C_1-C_6-alkylsulfinyl, C_1-C_6-haloalkylsulfinyl, C_1-C_6-alkylsulfonyl, C_1-C_6-haloalkylsulfonyl, aminosulfonyl, N-(C_1-C_6-alkyl)aminosulfonyl, N,N-di(C_1-C_6-alkyl)aminosulfonyl, N-(C_1-C_6-alkylsulfonyl)amino,

N-(C_1-C_6-haloalkylsulfonyl)amino, N-(C_1-C_6-alkyl)-N-(C_1-C_6-alkylsulfonyl)amino or N-(C_1-C_6-alkyl)-N-(C_1-C_6-haloalkylsulfonyl)amino;

R5 is hydrogen or C_1-C_6-alkyl;

L^4 is halogen, C_1-C_6-alkylsulfonyloxy, C_1-C_6-haloalkylsulfonyloxy or phenylsulfonyloxy, where the phenyl ring of the lastmentioned radical may be unsubstituted or partially or fully halogenated and/or may carry one to three of the following radicals: nitro, cyano, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkoxy or C_1-C_4-haloalkoxy.

20. An aniline of the formula XV and a nitrile of the formula XVI

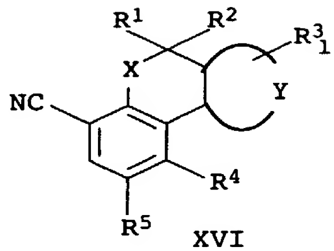


XV

in which the variables X, Y, R^1 to R^3 and R^5 and l are in each case as defined in claim 1 and

R^4 is nitro, halogen, cyano, C_1-C_6-haloalkyl, C_1-C_6-alkoxy, C_1-C_6-haloalkoxy, C_1-C_6-alkylthio, C_1-C_6-haloalkylthio, C_1-C_6-alkylsulfinyl, C_1-C_6-haloalkylsulfinyl, C_1-C_6-alkylsulfonyl, C_1-C_6-haloalkylsulfonyl, aminosulfonyl, N-(C_1-C_6-alkyl)aminosulfonyl, N,N-di(C_1-C_6-alkyl)aminosulfonyl, N-(C_1-C_6-alkylsulfonyl)amino, N-(C_1-C_6-haloalkylsulfonyl)amino, N-(C_1-C_6-alkyl)-N-(C_1-C_6-alkylsulfonyl)amino or N-(C_1-C_6-alkyl)-N-(C_1-C_6-haloalkylsulfonyl)amino.

21. A nitrile of the formula XVI



XVI

in which the variables X, Y, R^1 to R^3 and l are in each case as defined in claim 1 and

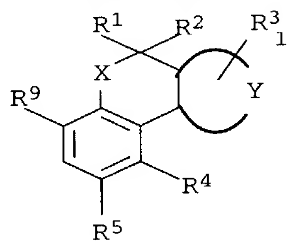
R^4 is nitro, halogen, cyano, C_1–C_6–haloalkyl, C_1–C_6–alkylthio, C_1–C_6–haloalkylthio, C_1–C_6–alkylsulfinyl, C_1–C_6–haloalkylsulfinyl, C_1–C_6–alkylsulfonyl, C_1–C_6–haloalkylsulfonyl, aminosulfonyl, N–(C_1–C_6–alkyl)aminosulfonyl, N,N–di–(C_1–C_6–alkyl)aminosulfonyl, N–(C_1–C_6–alkylsulfonyl)amino, N–(C_1–C_6–haloalkylsulfonyl)amino, N–(C_1–C_6–alkyl)–N–(C_1–C_6–alkylsulfonyl)amino or N–(C_1–C_6–alky)–N–(C_1–C_6–haloalkylsulfonyl)amino;

R^5 is hydrogen or C_1-C_6-alkyl.

Tricyclic benzoylpyrazole derivatives

Abstract

Tricyclic benzoylpyrazole derivatives of the formula I



where:

X is oxygen, sulfur, S=O, $S(=O)_2$, CR^6R^7, NR^8 or a bond;

Y together with the two carbons to which it is attached forms a saturated, partially saturated or unsaturated 5- or 6-membered heterocycle;

R^1,R^2,R^6,R^7 are hydrogen, alkyl, haloalkyl, alkoxy or haloalkoxy;

R^3 is halogen, alkyl, haloalkyl, alkoxy or haloalkoxy;

R^4 is hydrogen, nitro, halogen, cyano, alkyl, haloalkyl, alkoxy, haloalkoxy, alkylthio, haloalkylthio, alkylsulfinyl, haloalkylsulfinyl, alkylsulfonyl, haloalkylsulfonyl, unsubstituted or substituted aminosulfonyl or unsubstituted or substituted sulfonylamino;

R^5 is hydrogen, alkyl or halogen;

l is 0, 1 or 2;

R^8 is hydrogen, alkyl, haloalkyl, alkylcarbonyl, formyl, alkoxycarbonyl, haloalkoxycarbonyl, alkylsulfonyl or haloalkylsulfonyl;

R^9 is substituted pyrazol-4-ylcarbonyl or substituted 5-oxopyrazolin-4-ylmethylidene;

and their agriculturally useful salts;

processes and intermediates for preparing the tricyclic benzoylpyrazole derivatives; compositions comprising them and the use of these derivatives or of the compositions comprising them for controlling undesirable plants are described.

Declaration, Power of Attorney

0050/049828

We (I), the undersigned inventor(s), hereby declare(s) that:

My residence, post office address and citizenship are as stated below next to my name,

We (I) believe that we are (I am) the original, first, and joint (sole) inventor(s) of the subject matter which is claimed and for which a patent is sought on the invention entitled

Tricyclic benzoylpyrazole derivatives

the specification of which

[x] is attached hereto.

[ ] was filed on ______________________ as

Application Serial No. ______________________

and amended on ______________________.

[x] was filed as PCT international application

Number PCT/EP00/02010

on March 8, 2000

and was amended under PCT Article 19

on ______________________ (if applicable).

We (I) hereby state that we (I) have reviewed and understand the contents of the above–identified specification, including the claims, as amended by any amendment referred to above.

We (I) acknowledge the duty to disclose information known to be material to the patentability of this application as defined in Section 1.56 of Title 37 Code of Federal Regulations.

We (I) hereby claim foreign priority benefits under 35 U.S.C. § 119(a)–(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed. Prior Foreign Application(s)

Application No.	**Country**	**Day/Month/Year**	**Priority Claimed**
19911219.3	*Germany*	*12 March 1999*	[x] Yes [ ] No

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We (I) hereby claim the benefit under Title 35, United States Codes, § 119(e) of any United States provisional application(s) listed below.

(Application Number)	(Filing Date)
(Application Number)	(Filing Date)

We (I) hereby claim the benefit under 35 U.S.C. § 120 of any United States application(s), or § 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. § 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR § 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

Application Serial No.	**Filing Date**	**Status (pending, patented, abandoned)**

And we (I) hereby appoint **Messrs. HERBERT. B. KEIL**, Registration Number 18,967; and **RUSSEL E. WEINKAUF**, Registration Number 18,495; the address of both being Messrs. Keil & Weinkauf, 1101 Connecticut Ave., N.W., Washington, D.C. 20036 (telephone 202–659–0100), our attorneys, with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to sign the drawings, to receive the patent, and to transact all business in the Patent Office connected therewith.

We (I) declare that all statements made herein of our (my) own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

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